IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Leonard H. Lopez, Jr.	§	Atty. Docket No.: 7826.003
Serial No.: 09/487,392	§	Group Art Unit: 3625
Filed: January 18, 2000	§	Examiner: Zurita, James
Title: Method for Automated Print Ordering Utilizing the Internet	§	

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37 C.F.R. § 1.131 AFFIDAVIT OF LEONARD H. LOPEZ, JR.

I, Leonard H. Lopez, Jr., being duly sworn, state as follows:

1. I am over 21 years of age, a resident of San Antonio, Bexar County Texas, and I am competent to make this affidavit. The following statements are true statements made of my own knowledge or statements that I, on information and belief, believe to be true. I understand that willful false statements and the like are punishable by fine or imprisonment or both.

2. I am the inventor of the invention claimed in the application entitled "Method for Automated Print Ordering Utilizing the Internet," filed on January 18, 2000 which is attached as Exhibit "A."

3. I completed and reduced-to-practice my claimed invention *prior* to December 13, 1999, the claimed priority date of U.S. Patent No. 6,473,760, issued to Klatt et al., which I understand was cited as the primary reference in an office action in the pending application rejecting the claims of that application under 35 U.S.C. § 103(a).

4. Attached as Exhibit "B" is a copy of U.S. Patent No. 6,473,760 issued to Klatt et al. which was filed on January 10, 2000; and states it is a continuation of Application Number 09/460,307 filed on December 13, 1999.

5. Klatt, as I understand it, is "a system and method for extracting information from one or more corporate databases and automatically generating print production orders using such information." (See Exhibit "B," column 3, lines 32-35.) Information stored in a corporate database is monitored and used to determine when certain business-related events have occurred. Event information is transmitted over the Internet to a print production facility, where it is used to fire one or more event rules, which in turn automatically generate print requisitions or print production orders. (See Exhibit "B," abstract.)

6. The Examiner states that the Klatt patent teaches and provides for "collecting and providing informational elements and content (Exhibit 'B,' column 10, line 42-column 11, line 19) and customizing and generating a customized product record (Exhibit 'B,' figure 6)." The Examiner additionally states that Klatt describes enabling "a user to select and order company-tailored prototypical product record for a business card to be printed according to the company-tailored product record and contents of a profile." (See Exhibit "B," figure 5.)

7. Attached as Exhibit "C" are screen shots showing a completion and reduction to practice of my invention as it appeared on June 10, 1999 to a user for inputting a predetermined profile defining content for one or more of the informational elements provided by the template into the system and using a template to define the placement and typography of a plurality of informational elements for printing on a company-tailored business card or stationery product as described in Exhibit "A." The screen shots, in particular, display (1) my process of collecting and providing company-indicative informational elements and content; (2) my process of

customizing and generating a company-tailored prototypical product record; and (3) my process of selecting and ordering company-tailored prototypical product record to be printed according to the company-tailored product record and contents.

8. The Examiner states that Klatt provides for "a set of printable stationery products" (Exhibit "B," column 1, lines 16-27 and col. 11, lines 8-19 and Figure 5).

9. Attached as Exhibit "D" is a screen shot showing a completion and reduction to practice of my invention as it appeared to a user on June 10, 1999 listing a set of stationery items that were available for ordering.

10. Attached as Exhibit "E" is a sample business card dated August 19, 1999 created by conventional printing.

11. Attached as Exhibit "F" is a print preview of the same business card as shown in Exhibit "E" created by my invention prior to December 13, 1999 showing the layout selected for the components. This print preview shows that no typesetting and no proofing is required by the printer as the order information is directly and automatically flowed into the pre-press product.

11. According to the Examiner, Klatt teaches the process of "directly generating a pre-press product automatically merging and incorporating the profile data into the tailored product." (See Exhibit "B," column 1, lines 53-64 and column 7, lines 7-19.)

12. As shown in Exhibit "F," my invention specifically shows that the order information directly and automatically flowed into the pre-press product without human intervention before Klatt's filing date of December 13, 1999.

13. Attached as Exhibit "G" is a Billing Statement for custom business cards dated September 3, 1999 which business cards and invoice were created by the invention by processing the user's print order through a processor interface.

14. The Examiner states that the Klatt patent provides for "a requestor interface for entry of a distributed user's print order." (See Exhibit "B," column 1, lines 30-53 and column 11, lines 8-60.)

15. Prior to December 13, 1999, I completed and reduced to practice a system that allows for order entry where a requestor interface is provided for entering a user's print order into the system. Exhibit "G" is notification confirming that such order was placed prior to Klatt's filing date of December 13, 1999.

16. Attached as Exhibit "H" is an Invoice for custom business cards of Exhibit "F" dated September 7, 1999 which business cards and invoice were created by the invention by processing the user's print order through a processor interface, said processor interface being adapted to directly generate a pre-press product automatically incorporating said predeterminable profile into said tailored product as evidenced in Exhibits "H-J."

17. Attached as Exhibit "I" is a Billing Statement for the custom business cards dated October 8, 1999 which business cards and invoice were created by my invention by processing the user's print order through a processor interface, where the interface directly generates a pre-press product.

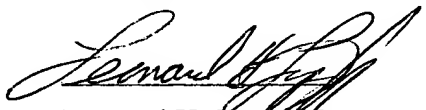
18. Attached as Exhibit "J" is an Invoice for custom business cards dated October 11, 1999 based on the billing statement of Exhibit "I" which business cards and invoice were created by my invention.

19. The Examiner further states that the Klatt patent teaches the creation of "an order for a print product using ordering computers (Exhibit 'B,' column 1, lines 30-53) and creating orders for print products (Exhibit 'B,' column 11, lines 8-60)."

20. As shown in Exhibit "J", my process specifically shows that an order had been created and entered for a print product using computers before December 13, 1999.

21. The attached Exhibits "C-D" and "F-J" all show dates where I proved I completed and reduced to practice my invention prior to Klatt's filing date of December 13, 1999.

22. All acts relied upon to establish the prior date of reduction to practice were carried out in the United States, a NAFTA country, or a WTO member country.



Leonard H. Lopez, Jr.

STATE OF TEXAS §

COUNTY OF BEXAR §

BEFORE ME, the undersigned authority, on this day personally appeared LEONARD H. LOPEZ, JR., known to me to be the person of that name, who signed the foregoing instrument, and acknowledged the same to be his free act and deed.

GIVEN under my hand and seal of office this 24th day of May, 2005.

Maria Del Jesus Vidaurri
Notary Public

Seal

MARIA DEL JESUS VIDAURRI
Printed Name of Notary

Commission Expires 5/14/2008

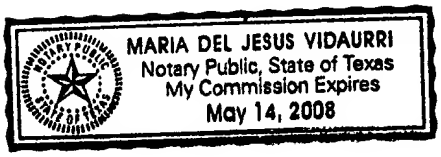


EXHIBIT A

METHOD FOR AUTOMATED PRINT ORDERING UTILIZING THE INTERNET

FIELD OF THE INVENTION:

The present invention relates to the expedited production of print media. More particularly, the invention relates to an internet based print order system specifically adapted for use in efficiently and cost-effectively supplying business cards, stationery products and the like to institutional and conglomerate users.

BACKGROUND OF THE INVENTION:

Charges for business cards, stationery products and the like constitute a significant portion of any commercial enterprise's cost of doing business. Due, in general, to the labor intensive nature of type-setting and, in particular, to the necessity to specifically tailor each product to a particular user's identity and/or office location, the actual printing costs associated with these items have traditionally far exceeded the costs associated with other print media. In addition, while smaller entities are more readily able to incorporate card and stationery ordering functions into other job functions, large institutional and conglomerate users often find that a significant number of personnel must be dedicated solely to the functions of order preparation, approval, submission, proofing, receiving, quality assurance and distribution. To further exacerbate the problem, each of these functions tends to be labor-intensive, each giving rise to the possibility for error, the only recourse being to reinitiate the entire process. Although such institutional and conglomerate users as are most affected by these problems have traditionally been expedient in rooting out similar problems in other areas of their businesses, they without exception tolerate these issues due to the generally accepted perception that no better system exists.

From the printer's perspective, the processes involved in receiving an order, typesetting a business card or stationery product and corresponding with the client to proof the order are typically more involved, and consequently often more costly, than the actual printing of the order. To further the frustration felt by the printer, the proofing process is ripe for dispute with the client, leading too often to the difficult decision as to whether to reprint an order free of charge or risk loss of the client by billing on a disputed order. What is more, even if the printer decides to discuss such an issue with its client, the regional printer must then at minimum absorb the long distance telephone charges involved in addition to those telecommunication charges already necessitated in faxing proofs and other related order documentation. Like the institutional and conglomerate users they serve, however, printers have consistently failed to address these issues, without exception accepting the present system as simply the best available.

Clearly, there is long-standing need for an improved print order system that eliminates these widely varied but unnecessarily cost-increasing functions. As a result, it is a primary object of the present invention to introduce an entirely new concept in business card and stationery ordering and printing for use by large institutional and conglomerate clients as well as the printers that serve their respective needs. In implementation of this concept, it is a further object of the present invention to provide an internet based print order system that minimizes data entry at the user site, streamlines the order approval process, eliminates the necessity for individual order proofing and eliminates data entry at the printer location. It is a still further object of the present invention to provide such as system that makes order status information automatically available for the user and incorporates the printer's billing functions directly into the order process. Likewise, it is a still further object of the present invention to facilitate drop-shipment of finished products by eliminating the need for user-side quality assurance and enabling orders to be processed according to destination address. Finally, it is an overriding object of the present invention to increase customer satisfaction by providing consistently accurate, fully company

tailored business card and stationery products on a greatly reduced order processing timeline without sacrifice of control by the purchasing agent or of quality in the finished product.

SUMMARY OF THE INVENTION:

In accordance with the foregoing objects, the present invention – a method for fulfillment of institutional business card and stationery product orders – generally comprises providing a specially adapted requestor interface for entry of a distributed user's print order and processing the user's print order through a likewise specially adapted processor interface. According to the preferred embodiment of the present invention, the requestor interface is adapted to enable the user to select a company tailored product according to a predeterminable profile and the processor interface is adapted to directly generate a pre-press product for automatically incorporating the predeterminable profile into the finished tailored product.

In particular, providing the requestor interface involves generating one or more prototypical product records, developing a list of fields according to the prototypical product record or records and defining a database management system. Each prototypical product record comprises a template sufficient to completely define the typography of a specific company tailored product, which will preferably include all tracking, kerning and text adjustment information for a specific product and may also include all necessary graphics placement information for the product. In the preferred embodiment of the present invention, this step involves generating a plurality of prototypical product records – one for each business card and/or stationery product style to be made available through the system.

Each field of the field list comprises a unique specification element for the various products. Among these elements, user-indicative information, such as name, private telephone line and/or e-mail address, as well as company indicative-information, such as local office address and authorized personnel title, will be collected and stored in a database management

system. Once entered and stored, at least some of this type of information forms the predeterminable profile, enabling the remote user is to simply select the desired company tailored business card or stationery product without necessity for error-prone repetitive data entry.

The database management system comprises a user interface for input of data and selection of products, as well as other automated order approval and processing functions. This interface is adapted for operation over the World Wide Web and, preferably, comprises a server-side scripting environment. As is known to those of ordinary skill in the art, such an environment is efficient in operation and also enables effective implementation of security protocols.

In processing of the print order, at least a portion of the data stored in the database management system is merged with the template of the appropriate prototypical product record to directly generate a pre-press product such as, for example, a direct-to-plate command set or a copier command set. According to the preferred embodiment of the present invention, however, a script, adapted to automatically format data for merging into the prototypical product records, is also generated during the production of the requestor interface and this script is so used during the order processing. Such a script also serves to automatically import graphics data into the templates according to the content of the data collected in the database management system during system setup and order entry.

Finally, many other features, objects and advantages of the present invention will be apparent to those of ordinary skill in the relevant arts, especially in light of the foregoing discussions and the following drawings, exemplary detailed description and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS:

Although the scope of the present invention is much broader than any particular embodiment, a detailed description of the preferred embodiment follows together with illustrative figures, wherein like reference numerals refer to like components, and wherein:

Figure 1 shows, in functional block diagram, the internet based print order system of the present invention as implemented according to the presently preferred embodiment;

Figure 2 shows, in flowchart, the top-level functions of the internet based print order system of Figure 1;

Figure 3 shows, in flowchart, certain details of the template and script generation function of Figure 2;

Figure 4 shows, in flowchart, certain details of the user interface propagation function of Figure 2;

Figure 5 shows, in schematic block diagram, certain details of the database structure of the internet based print order system of Figure 1 as referred to in Figure 4 and elsewhere;

Figure 6 shows, in flowchart, certain details, from an individual requestor's perspective, of the product request entry function of Figure 2;

Figure 7 shows, in a computer screen representation, certain details of the profile creation step of the product request entry function as detailed in Figure 6;

Figure 8 shows, in a computer screen representation, certain details of the order placement steps of the product request entry function as detailed in Figure 6;

Figure 9 shows, in a computer screen representation, certain details of the order review step of the product request entry function as detailed in Figure 6;

Figure 10 shows, in flowchart, certain details, from a local office representative requestor's perspective, of the product request entry function of Figure 2;

Figure 11 shows, in flowchart, certain details of the request approval function of Figure 2;

Figure 12 shows, in flowchart, certain details of the title or profile maintenance step of the request approval function as detailed in Figure 11;

Figure 13 shows, in a computer screen representation, certain details of the service center profile creation sub-step of the title or profile maintenance step as detailed in Figure 12;

Figure 14 shows, in flowchart, certain details of the order processing step of the request approval function as detailed in Figure 11;

Figure 15 shows, in a computer screen representation, certain details of the order approval sub-steps of the order processing step as detailed in Figure 14;

Figure 16 shows, in flowchart, certain details of the batch processing function of Figure 2;

Figure 17 shows, in flowchart, certain details of the order processing step of the batch processing function as detailed in Figure 16;

Figure 18 shows, in flowchart, certain details of the batch creation and implementation sub-step of the order processing step as detailed in Figure 17;

Figure 19 shows, in a computer screen representation, certain details of the batch implementation sub-step detailed in Figure 18; and

Figure 20 shows, in flowchart, certain details of the batch-to-script importation function of Figure 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT:

Although those of ordinary skill in the art will readily recognize many alternative embodiments, especially in light of the illustrations provided herein, this detailed description is exemplary of the preferred embodiment of the present invention, the scope of which is limited only by the claims appended hereto.

Referring now to Figure 1 in particular, the Internet based print order system 30 of the present invention is shown to generally comprise one or more requestor interfaces 31, 32, a purchaser interface 33 and a processor interface 34, each resident upon the World Wide Web 35

through a host server 36. As also shown in Figure 1, the print order system 30 of the present invention further comprises an interface 37 from the server 36 to an automated pre-press system 38 such as, for example, a direct-to-plate system. In operation, individual users and/or local office representatives access the server 36 through their respective ordinary Internet gateways 39, 40 in order to update user information and/or to place print orders. As will be better understood further herein, the updated information and/or print orders are then immediately accessible to a company purchasing representative, through the representative's ordinary Internet gateway 41, for order modification, deletion or approval. Likewise, approved print orders are then immediately accessible to the printer, through the printer's ordinary Internet gateway 42 or by direct access 43 to the server 36, as shown in Figure 1, for any necessary processing prior to pre-press. Finally, approved and processed orders are directly flowed to the pre-press system 38, wherein a fully tailored print plate, or the substantial equivalent, is automatically produced to predetermined customer specifications.

As particularly shown in Figure 2, the print order system 30 of the preferred embodiment of the present invention is generally implemented by generating per-product electronic publishing templates and a script program for automatically flowing order data thereto 44. As will be better understood further herein, the template and script program generation step 44 is also relied upon to generate a company specific field list, which is then used to construct a database management system 74, for collection and storage of user and print order information, and to propagate the requestor, purchaser and processor interfaces thereto 45. Because the print order system 30 of the preferred embodiment of the present invention is designed for Internet implementation, the user interfaces are disseminated simply by e-mail message or like communication of the URL addresses corresponding to the interfaces' location on the World Wide Web 46.

Once the database management system and the requestor, purchaser and processor interfaces thereto are established on the host server, business card and stationery print orders may be repetitively fulfilled through an efficient process of simplified order entry 47 and approval 48 followed by batch processing 49 and scripting 50 for the automated and accurate generation of print plates 51. As will be better understood further herein, the order entry step 47 generally comprises the single entry of user specific information followed by the repeated mere selection, from a full range of available products, of desired print products. As will be appreciated by those of ordinary skill in the art, this architecture dramatically reduces errors in order fulfillment by virtually eliminating the typesetting function. As also detailed further herein, the order approval process 48 is greatly streamlined by enabling the company's purchasing agent to rely upon the unchanged status of previously checked user entered information as well as his or her confidence in the automated fulfillment of an approved order. Finally, no typesetting and no proofing is required of the printer as the approved order information is directly and automatically flowed into the pre-press product 51.

Referring now to Figure 3, the template and script program generation function 44 is detailed. As a preliminary step, a printer representative will typically conduct an in-depth interview with the company client to determine the company's full range of business card and stationery needs 52. This interview will also determine the circumstances dictating when the various options are to be made available to each level of personnel. Samples of presently utilized business card and stationery products may also be collected at this time in order to ensure maximum product continuity upon implementation of the system. The printer's electronic publishing staff then generates a prototypical product record for each product to be made available through the system 53. This record, or template, comprises the complete typography of each product, including all tracking, kerning, text adjustment, graphics placement and like information. As will be better understood further herein, the prototypical records should be

generated in a software directly compatible with the pre-press product to be used in fulfillment of the customer's print orders – in the preferred embodiment, a direct-to-plate platemaking system such as the well-known DPX system commercially available from Purup-Eskofot of Denmark. Although those of ordinary skill in the art will recognize many substantial equivalents, especially in light of this exemplary description, Applicant has found that the trademark "QUARK XPRESS" electronic publishing application, commercially available from Quark, Inc. of Denver, Colorado, is one such suitable software.

As each possible product configuration is captured in a prototypical product record, a script program and field list is generated 54 as what will become an automated interface with a database management system 74, detailed further herein. This list essentially defines the fields for the database tables, each field representing a unique element of the various products' specification. For example, and in every case depending upon product layouts, one or more fields may be dedicated for the individual user's name, a field may be dedicated for the user's direct telephone line, a field may be dedicated for the user's e-mail address and so forth. As will be better understood further herein, user peculiar information of this nature is referred to as user-indicative information and the fields that contain such information will be utilized to create one or more predeterminable profiles in the database creation steps, detailed further herein. Likewise, one or more fields may be dedicated for company-indicative information such as, for example, the address of a particular local office or the list of authorized, standard titles for various personnel.

Although those of ordinary skill in the art will recognize that the data from a database created according to these fields could be flowed directly to the electronic publishing application for merger with the prototypical product records, it is preferred that a script program be generated 54 to handle formatting and graphics importation as an intermediate, albeit fully automated, process. The provision of such a script program ensures that the business cards and/or

stationery products will invariably be produced according to company specification regardless of font type or size, and the like, utilized in filling the database tables. In the preferred embodiment of the present invention, Applicant has implemented such a script program with the trademark "XDATA" extension to the Quark product, commercially available from Em Software, Inc. of Steubenville, Ohio. Although those of ordinary skill in the art will recognize many substantial equivalents, the "XDATA" product is widely compatible with many standard database and spreadsheet applications and is specifically adapted for compatibility with the implemented trademark "QUARK XPRESS" application.

Once a template has been produced for each product to be made available through the system and the fields necessary for completion thereof have been identified, demonstrative data may be flowed to the electronic publishing package to actually generate a print plate for quality assurance purposes 55. As will be better understood further herein, this is the only instance of proofing required according to the method of the present invention. If the product is correct at this juncture, the product will be correct in all cases save an error in filling the database. As also be better understood further herein, however, the print order system of the present invention is also specifically adapted to root out any such database error. Assuming then client acceptance of the products produced according to the generated templates and scripting program, the field list is exported for database implementation 56, as detailed in Figure 4.

As an initial step, the fields are parsed according to the type of information to be collected and held therein and, as will be better understood further herein, the circumstances under which that type of information may change over the implementation life of the print order system 57. Each category is then implemented in the database 74 as a separate, cross-linkable table 58. For example, as shown in the exemplary representation of Figure 5, the "orders" table 59 may only contain an order number 60, product identifier 61, quantity 62 and user identifier 63. While the product identifier 61 and quantity information 62 are directly stored in the "orders"

table 59, it is noted that the user information is actually only a cross-link to the "users" table 64. In this manner, as will be better understood further herein, an update to a user's information may be effective at the last possible moment prior to actual product printing. Likewise, company-indicative information is cross-linked from the "company" table 65 to ensure that a single update can be made effective on a date certain within all outstanding orders. As also shown in Figure 5, product identifiers 61, stored in the "products" table 66 and authorized titles 67, stored in the "titles" table 68, are flowed into the various other tables as selectable only inputs. In this manner, only those products for which a prototypical record have been developed and only those titles authorized by the company can be selected by a user requestor.

Once the database tables are defined 58, according to the foregoing considerations, HTML interfaces are generated for database manipulation and maintenance 69. The system is then activated on the host server 70. In the preferred embodiment of the present invention, the HTML interfaces are implemented using a server-side scripting language, such as the trademark "ACTIVE SERVER PAGES," commercially available from the Microsoft Corporation of Redmond, Washington. In this manner, communications with the server from a user's browser are made extremely efficient, ultimately resulting in increased customer satisfaction. As is well-known to those of ordinary skill in the art, such an implementation also enables the provision of effective security protocols. In any case, as shown in Figures 6 through 19, the implemented database interfaces 31,32,33,34 of the present invention enable efficient order entry and approval and streamlined order fulfillment and exemplary features of the preferred embodiment are now detailed.

Referring now to Figure 6, the many of the functions available to the individual user print product requestor are detailed. As shown in the Figure, a security protocol is implemented 71 to identify the individual user and, if the user has not previously utilized the system 72, he or she will be invited to create an individual profile 73. This profile, which will store all user-

indicative information necessary to produce any available business card or stationery product, is then stored on the server 36 in the database management system 74. As shown in Figure 7, such a profile 73 may include personal information such as the individual's name 75 and telephone number 76, and may also include, at the company's discretion, such information as a billing code 77 and/or supervisor name 78. It is noted that information such as the user's title 79 and address 80 are selected from drop-down menus 81, 82, thereby ensuring company control of authorized titles and address format, as will be better understood further herein. Finally, upon saving of the profile 73, a "last updated" date 83 is noted for communication to the company purchasing agent. In this manner, the company purchasing agent need only verify user input data upon change of that data.

Referring again to Figure 6, it is noted that the individual user then has the options to place a new order 84, review the status of a pending order 85 or to update his or her profile 86, as necessary. As also shown in the exemplary order screen of Figure 8, the user places a new order by simply entering the desired quantity per product 87 on the order form and then selecting the style 88 and shipping method 89. In this manner, the likelihood for error in the ordering process is virtually eliminated. The submit order button 90 is then simply clicked, reducing the entire business card and stationery product order process to an easy, error-free few seconds. The user may then be automatically logged out of the requestor interface 91.

In the alternative, the user having already placed an order may desire to known the status of that order. In this case, the user is directed to an order status screen 85, such as the exemplary screen represented in Figure 9, where the precise status of the order is made available without necessity for any human resources. As shown in the representation, the user can tell whether the company purchasing agent has approved the order 92 as well as whether the agent has changed any portion, such as quantity 87 or shipping method 89, of the order. Likewise, if there is any

delay in the order fulfillment process, the user will also have accurate information as to whether the delay is a printer problem or a delay in the approval process.

As shown in Figure 10, the local office or service center representative is provided with similar functionality for ordering general stationery or business card products. Although the order placement process 93 and status review functions 94 are virtually identical to those made available to the individual user and the representative may view the local office profile 95, it is noted that the local office level representative does not have the ability to modify the office profile. In this manner, print orders are not disrupted by miscommunication and/or disagreement among remote personnel.

Turning now to Figure 11, the company purchasing agent is provided with a purchaser interface 33 through which he or she is able to maintain the local office profiles and/or or the list of authorized personnel titles 96. The purchasing agent is also provided with functionality enabling the expedited modification, deletion and/or approval or individual and service center orders 97 and can at any time view a report indicating the status of all orders in the system 98, from entry through shipment and billing.

As shown n Figure 12, the company purchasing agent is the preferred level of control over the authorized titles list and the content of the service center profiles. The purchasing agent can add, edit or remove titles 99 and can create 100, modify 101 or remove 102 center profiles. Referring back to Figure 5, however, it is noted that the database 74 is specifically set up to prevent such changes from having an adverse affect on pending orders. For example, it is noted that when a user selects a title 67 from the list of authorized titles, represented in the "titles" table 68, the actual title 67 is imported to the "users" table 64. In this manner, a single keystroke is prevented from upsetting the entire order process. On the other hand, some of the company data, but not necessarily all of the company data, is incorporated into the "users" table 64 by reference only. For example, the service center address 103 may find its way into an order

through a reference only in the "users" table 64 indicating the location of the user. In this manner, a center relocation will be reflected upon every affected order not actually printed. Finally, in the event of a center closure during the pending of an order, the order will be rightly cancelled and the user individual user will preferably be required to select a new location upon next logon. As shown, in Figure 13, the service center profile 104 includes much the same types of information as does an individual's profile, including address lines 105, billing codes 106 and/or logo designs 107.

Turning to Figure 14, the order processing function 97 as made available to the purchasing agent is detailed. As shown, the streamlined process entails reviewing the orders 108 and then simply clicking a check box 109, shown in Figure 15, to approve the orders 110. As previously mentioned, however, the purchasing agent does have information available indicating when the user last changed his or her profile 83 as well as cost information 111. This information may be used to invoke a decision to view the user's profile 112 for error prevention and/or to modify 113 or remove 114 an order or portion thereof. Once the purchasing agent has effect all necessary changes, however, and selected those orders for approval, a simple click of the "approve order" button 115 sets the actual printing process into motion. In the alternative, the preferred embodiment also comprises a function for the individual approval of a "rush" order without necessity for setting the entire process in motion 116.

Upon approval of one or more orders, the processor is provided with the ability to process the orders 117, as detailed in Figure 16. As also detailed in Figure 16, the processor also always has the ability to maintain client data 118, such a price lists, and to maintain system functions 119, such as the field lists. As shown in Figure 17, order processing generally comprises the functions of batch processing 120, shipping 121 and billing 122. The processor is, of course, also given the ability to view the status of as of yet not approved orders 123, which is

extremely useful for order raw materials according to statistical analysis indicating the number of orders that will materialize in the near future.

Batch processing 120, detailed in Figures 18 and 19, allows the processor to sort the orders into batches, each of which may be assigned a unique identifier for "work order" purposes 123, and to assign the sorted orders into the appropriate batches 124, the assignment being recorded in a "batch element" table 125 as shown in Figure 5. The assignment to batches will generally be based upon product style, paper stock requirements and ink color requirements, but also may consider such factors as shipping address. Although this process is presently a manual function, it is anticipated that the entire batching process could be implemented according to a rule-based system. This system would also ensure maximized profit without sacrifice to customer satisfaction by capping the length of time an order may be approved prior to printing while generally attempting to avoid unnecessary print runs. Finally, it is noted that the processor preferably has access to the user profiles 126 as well as the orders themselves 127 during a manual batching, 128 or an intervention to an automated batching, in order that any necessary correction can be made at any time prior to actual printing.

Finally, as shown in Figure 20, all information necessary for completing an order is flowed into a "batch" table 129 according to the order numbers identified in the "batch element" table 125 at a time just prior to order fulfillment. The data in the "batch" table 129 is then formatted for file transfer 130 and downloaded 131 for importing to the script program 132. In this manner, each predeterminable profile is automatically incorporated into the pre-press product with no typesetting or other human intervention. The pre-press product, which may be a direct-to-plate command set, high-speed copier command set or the like, is then taken to press.

In the system of the present invention, the time for order fulfillment is reduced from several days per plate to three to four minutes. What is more, the errors traditionally associated with business card and stationery product orders are essentially eliminated. It is to be expected,

therefore, that the invention of the present invention will find widespread application in the fulfillment of business card and stationery product orders for virtually every institutional and conglomerate user.

While the foregoing description is exemplary of the preferred embodiment of the present invention, those of ordinary skill in the relevant arts will recognize the many variations, alterations, modifications, substitutions and the like as are readily possible, especially in light of this description, the accompanying drawings and claims drawn thereto. For example, it is anticipated that the entire initial database creation process could be automated through the provision of a software application specifically designed for this purpose. Likewise, with the implementation of an additional function involving an implementation of the trademark "ADOBE PDF" standard, the user requestor and/or purchasing agent could be given the opportunity to preview the finished product at the time of order entry or approval or, with an implementation involving a Macromedia trademark "FLASH" standard, user instructions could be verbalized and/or animated. In any case, because the scope of the present invention is much broader than any particular embodiment, the foregoing detailed description should not be construed as a limitation of the scope of the present invention, which is limited only by the claims appended hereto.

EXHIBIT B

US006473760B1

(12) **United States Patent**
Klatt et al.

(10) **Patent No.: US 6,473,760 B1**
(45) **Date of Patent: Oct. 29, 2002**

(54) **APPARATUS FOR PRINTING INFORMATION AUTOMATICALLY COMBINED FROM TWO DIFFERENT SOURCES**

(75) Inventors: **Cory Klatt**, Edmonds, WA (US); **Brent Krum**, Redmond, WA (US)

(73) Assignee: **ImageX, Inc.**, Bellevue, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/479,909**

(22) Filed: **Jan. 10, 2000**

Related U.S. Application Data

(63) Continuation of application No. 09/460,307, filed on Dec. 13, 1999.

(51) **Int. Cl.**[7] **G06F 17/30**

(52) **U.S. Cl.** 707/10; 707/200; 707/203; 707/205; 270/52.02; 395/200.32

(58) **Field of Search** 707/10, 200, 203, 707/205; 395/200.32; 270/52.02

(56) **References Cited**

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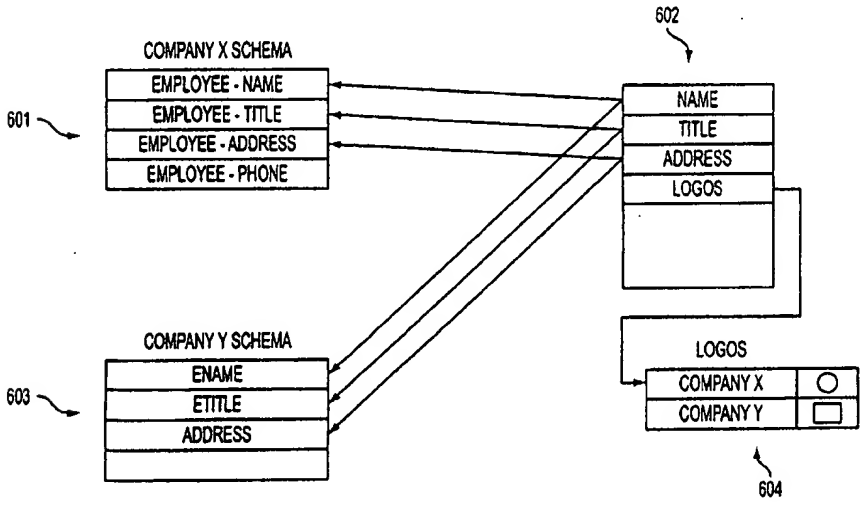
Primary Examiner—Charles L. Rones
Assistant Examiner—Thuy Pardo
(74) *Attorney, Agent, or Firm*—Banner & Witcoff LTD

(57) **ABSTRACT**

Information stored in a corporate database is monitored and used to determine when certain business-related events have occurred. Event information is transmitted over the Internet to a print production facility, where it is used to fire one or more event rules, which in turn automatically generate print requisitions or print production orders. In one variation, print requisitions are routed through an existing and commercially available procurement system before a print production order is generated. The system can monitor and handle events from multiple corporations, each having its own business-related event rules, and each potentially having its own procurement approval system.

14 Claims, 15 Drawing Sheets



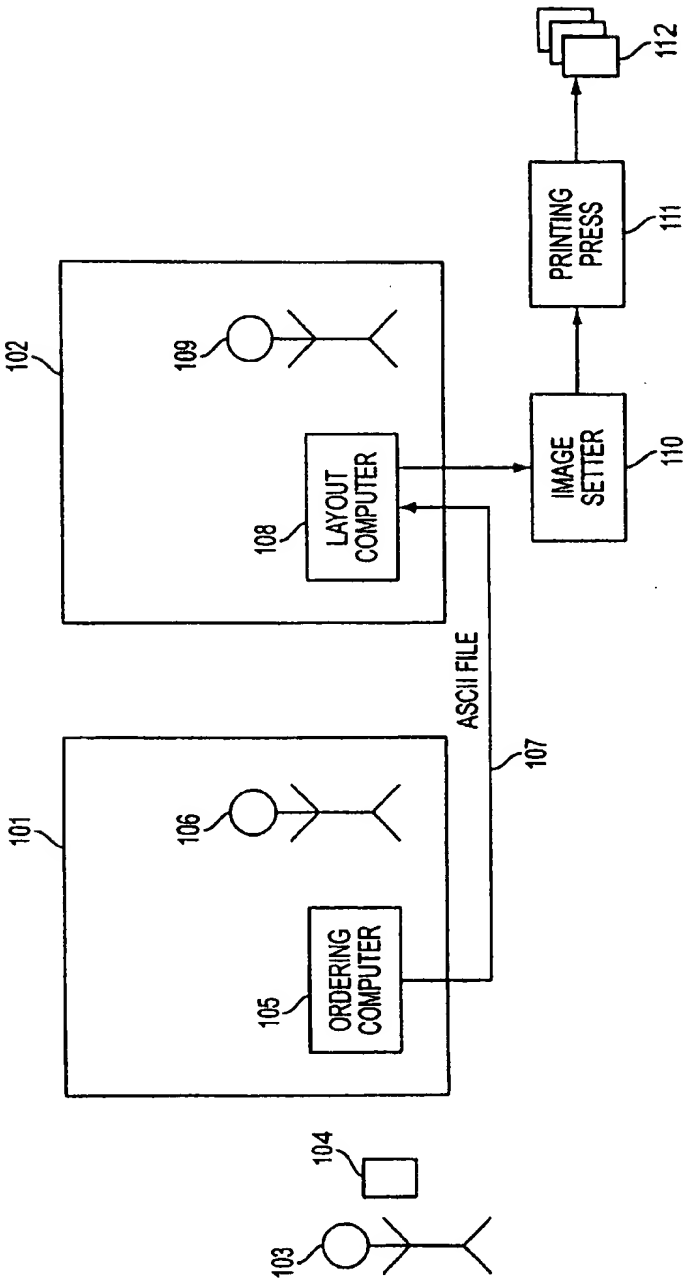


FIG. 1
(PRIOR ART)

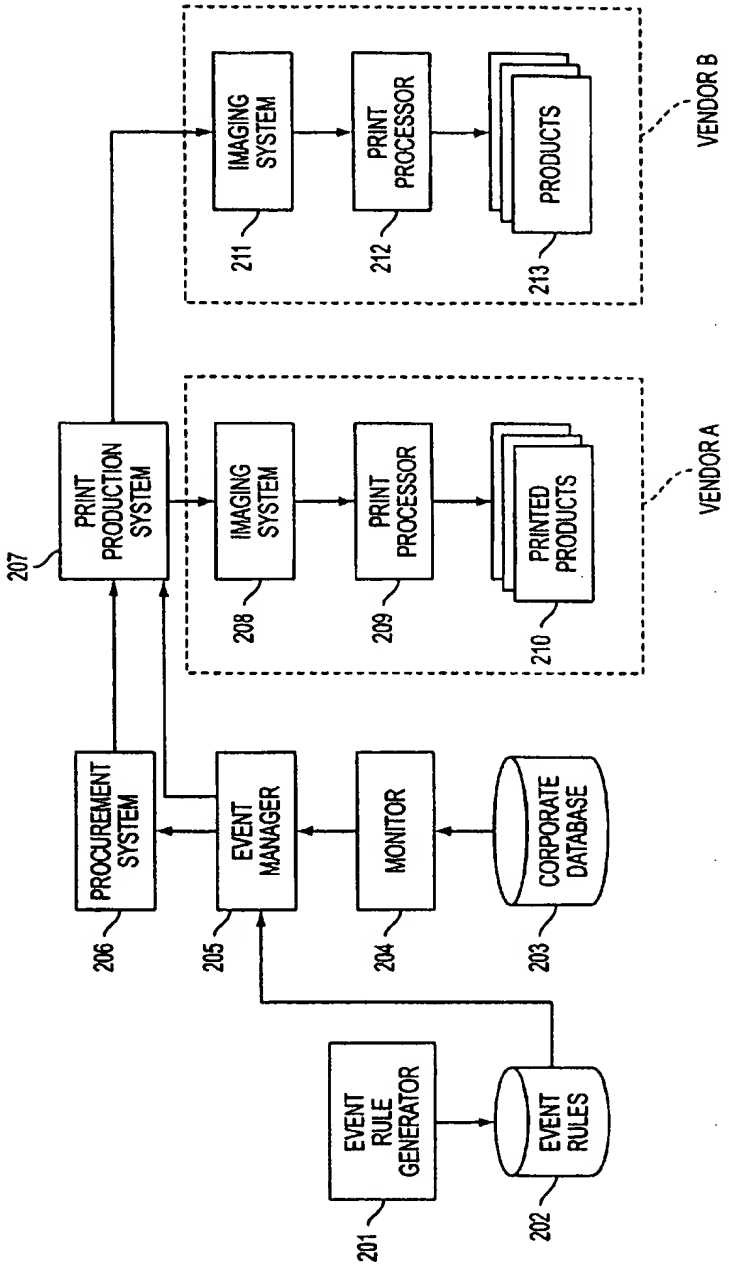

EVENT RULE GENERATOR
201
EVENT RULES
202
CORPORATE DATABASE
203
MONITOR
204
EVENT MANAGER
205
PROCUREMENT SYSTEM
206
PRINT PRODUCTION SYSTEM
207
IMAGING SYSTEM
208
PRINT PROCESSOR
209
PRINTED PRODUCTS
210
VENDOR A
IMAGING SYSTEM
211
PRINT PROCESSOR
212
PRODUCTS
213
VENDOR B

FIG. 2

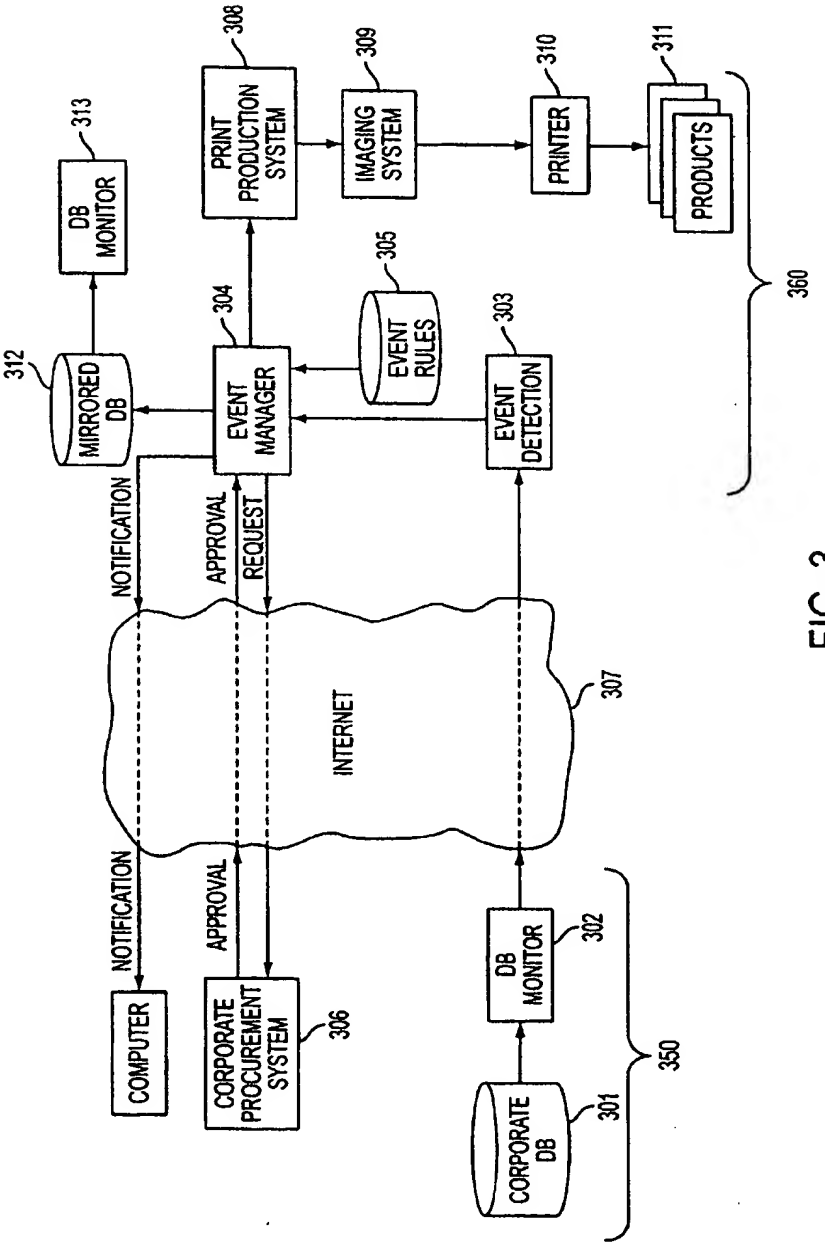

308
PRINT PRODUCTION SYSTEM
309
IMAGING SYSTEM
310
PRINTER
311
PRODUCTS
313
DB MONITOR
305
EVENT RULES
304
EVENT MANAGER
303
EVENT DETECTION
312
MIRRORED DB
360
NOTIFICATION
APPROVAL
REQUEST
INTERNET
307
NOTIFICATION
APPROVAL
COMPUTER
CORPORATE PROCUREMENT SYSTEM
306
DB MONITOR
302
CORPORATE DB
301
350

FIG. 3

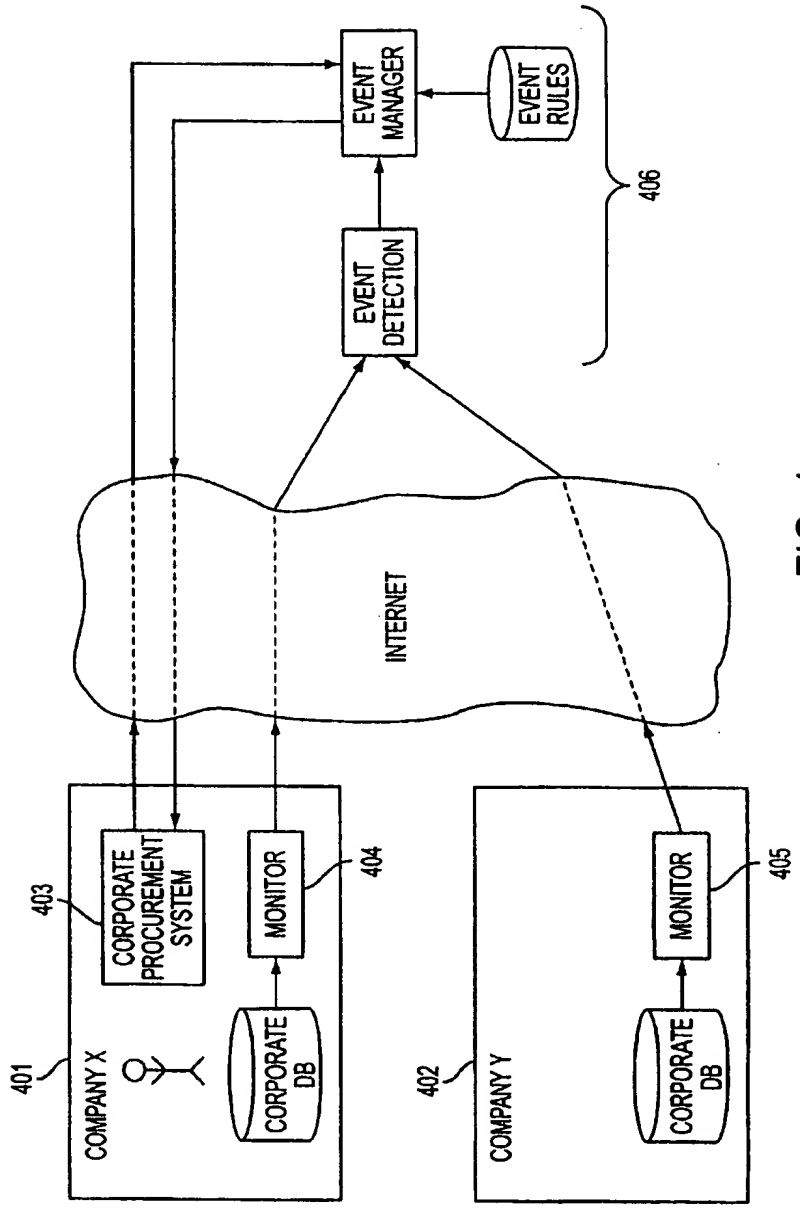

EVENT MANAGER
EVENT RULES
406
EVENT DETECTION
INTERNET
CORPORATE PROCUREMENT SYSTEM
403
MONITOR
404
CORPORATE DB
401
COMPANY X
MONITOR
405
CORPORATE DB
402
COMPANY Y

FIG. 4

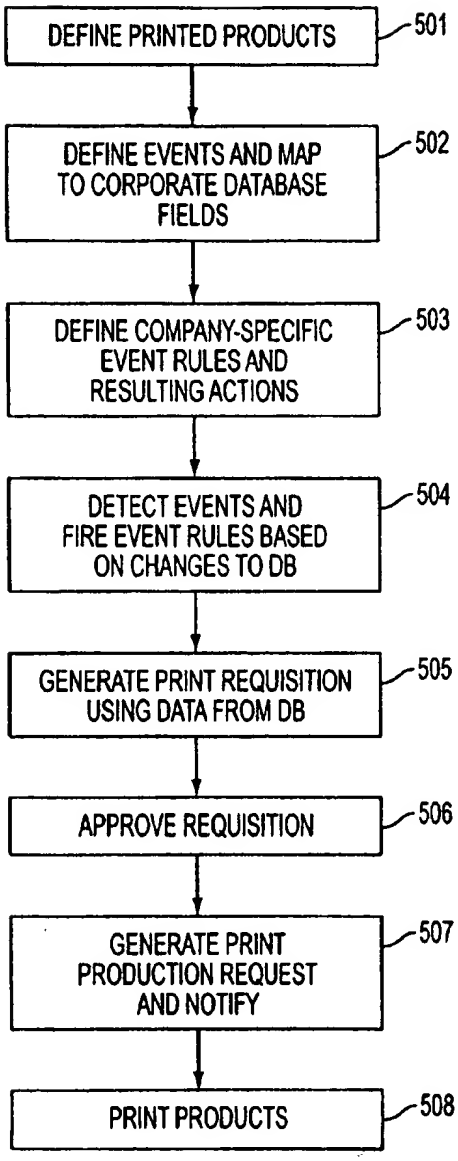

DEFINE PRINTED PRODUCTS
501
DEFINE EVENTS AND MAP TO CORPORATE DATABASE FIELDS
502
DEFINE COMPANY-SPECIFIC EVENT RULES AND RESULTING ACTIONS
503
DETECT EVENTS AND FIRE EVENT RULES BASED ON CHANGES TO DB
504
GENERATE PRINT REQUISITION USING DATA FROM DB
505
APPROVE REQUISITION
506
GENERATE PRINT PRODUCTION REQUEST AND NOTIFY
507
PRINT PRODUCTS
508

FIG. 5

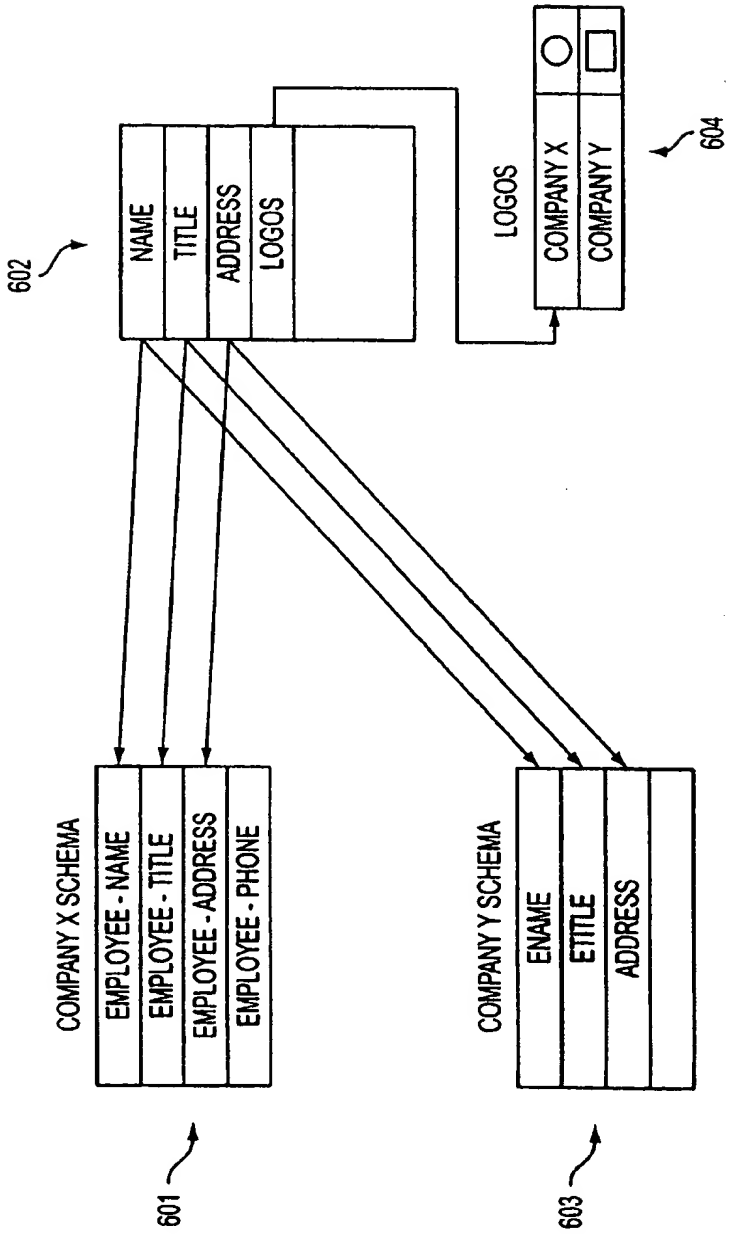

602
NAME
TITLE
ADDRESS
LOGOS
LOGOS
COMPANY X
COMPANY Y
604
COMPANY X SCHEMA
EMPLOYEE - NAME
EMPLOYEE - TITLE
EMPLOYEE - ADDRESS
EMPLOYEE - PHONE
COMPANY Y SCHEMA
ENAME
ETITLE
ADDRESS
601
603

FIG. 6

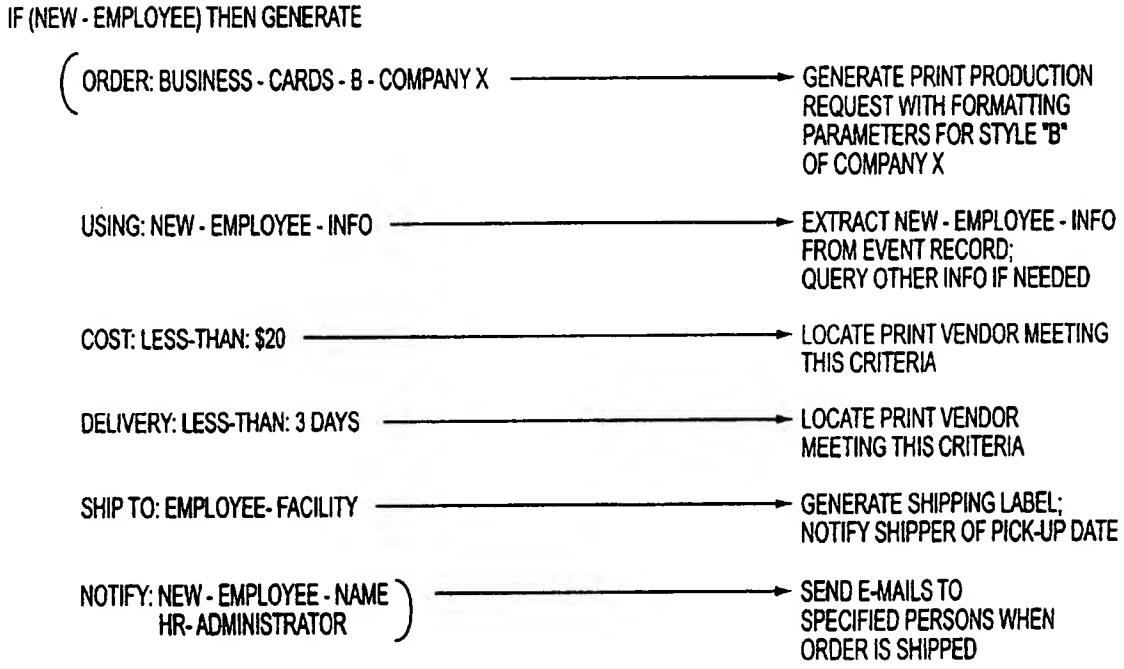

IF (NEW - EMPLOYEE) THEN GENERATE
ORDER: BUSINESS - CARDS - B - COMPANY X
GENERATE PRINT PRODUCTION REQUEST WITH FORMATTING PARAMETERS FOR STYLE "B" OF COMPANY X
USING: NEW - EMPLOYEE - INFO
EXTRACT NEW - EMPLOYEE - INFO FROM EVENT RECORD; QUERY OTHER INFO IF NEEDED
COST: LESS-THAN: $20
LOCATE PRINT VENDOR MEETING THIS CRITERIA
DELIVERY: LESS-THAN: 3 DAYS
LOCATE PRINT VENDOR MEETING THIS CRITERIA
SHIP TO: EMPLOYEE- FACILITY
GENERATE SHIPPING LABEL; NOTIFY SHIPPER OF PICK-UP DATE
NOTIFY: NEW - EMPLOYEE - NAME
HR- ADMINISTRATOR
SEND E-MAILS TO SPECIFIED PERSONS WHEN ORDER IS SHIPPED

FIG. 7

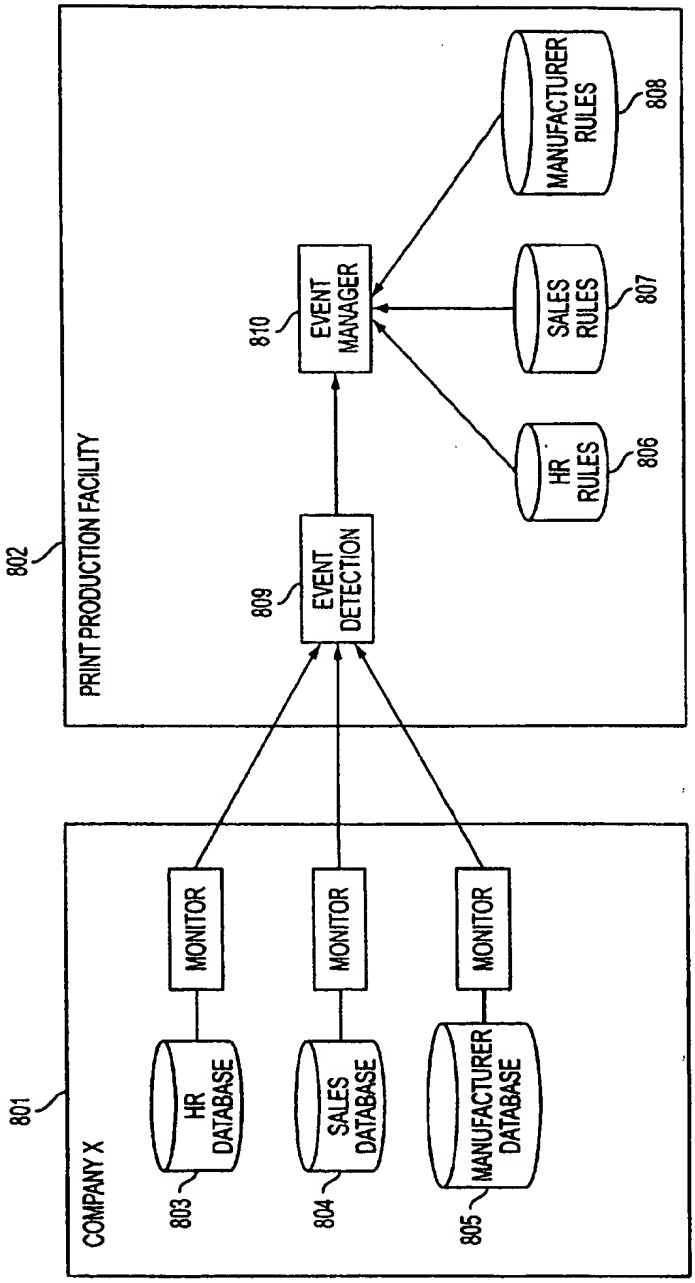

801
COMPANY X
MONITOR
MONITOR
MONITOR
HR DATABASE
SALES DATABASE
MANUFACTURER DATABASE
803
804
805
802
PRINT PRODUCTION FACILITY
EVENT DETECTION
809
EVENT MANAGER
810
HR RULES
806
SALES RULES
807
MANUFACTURER RULES
808

FIG. 8

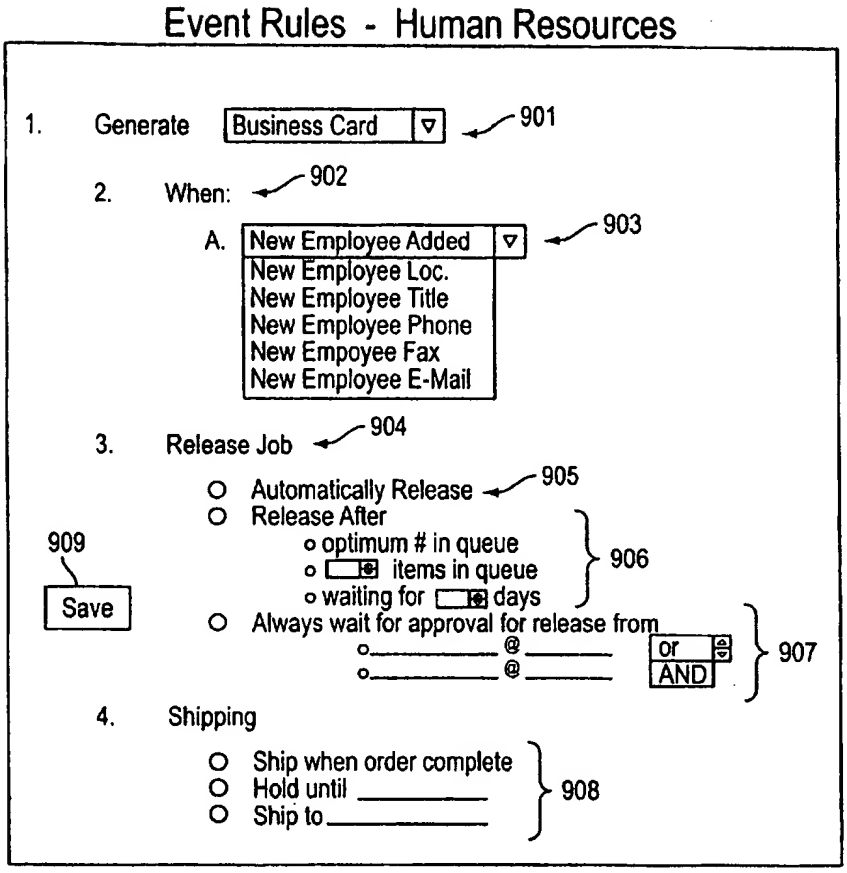

Event Rules - Human Resources
1. Generate
Business Card
901
2. When:
902
A.
New Employee Added
903
New Employee Loc.
New Employee Title
New Employee Phone
New Empoyee Fax
New Employee E-Mail
3. Release Job
904
Automatically Release
905
Release After
optimum # in queue
items in queue
waiting for days
906
909
Save
Always wait for approval for release from
@
@
or
AND
907
4. Shipping
Ship when order complete
Hold until
Ship to
908

FIG. 9

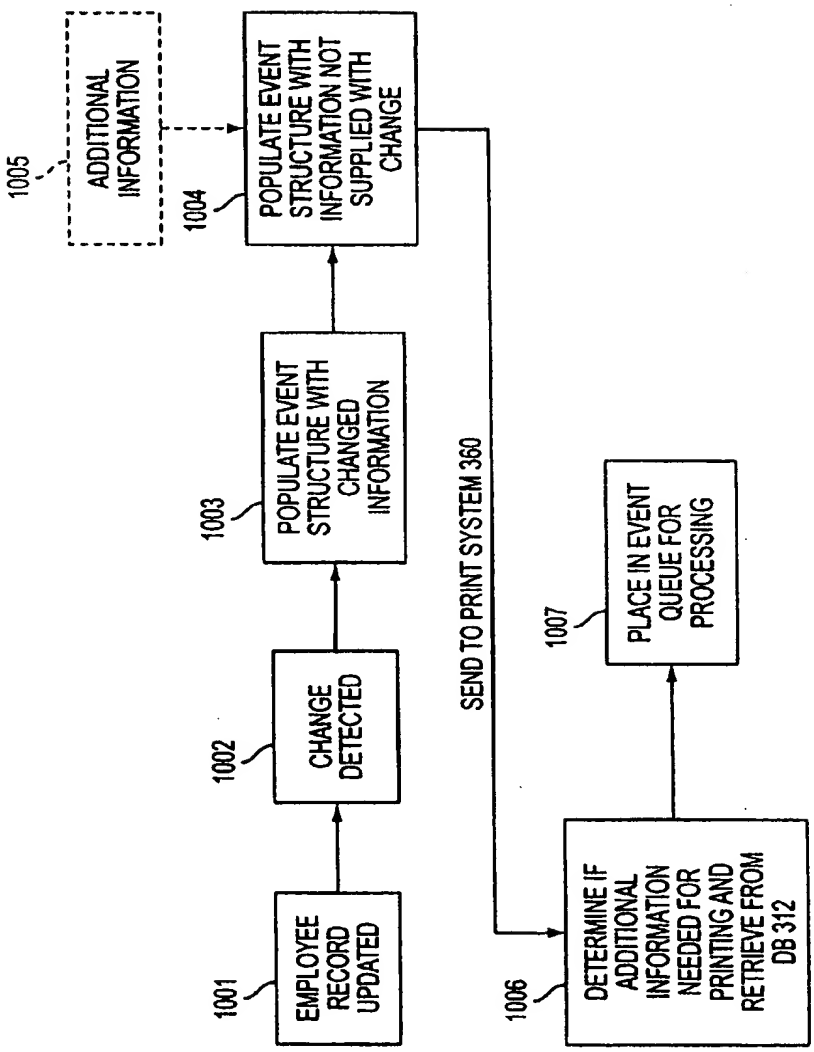

1001
EMPLOYEE RECORD UPDATED
1002
CHANGE DETECTED
1003
POPULATE EVENT STRUCTURE WITH CHANGED INFORMATION
1004
POPULATE EVENT STRUCTURE WITH INFORMATION NOT SUPPLIED WITH CHANGE
1005
ADDITIONAL INFORMATION
SEND TO PRINT SYSTEM 360
1006
DETERMINE IF ADDITIONAL INFORMATION NEEDED FOR PRINTING AND RETRIEVE FROM DB 312
1007
PLACE IN EVENT QUEUE FOR PROCESSING

FIG. 10

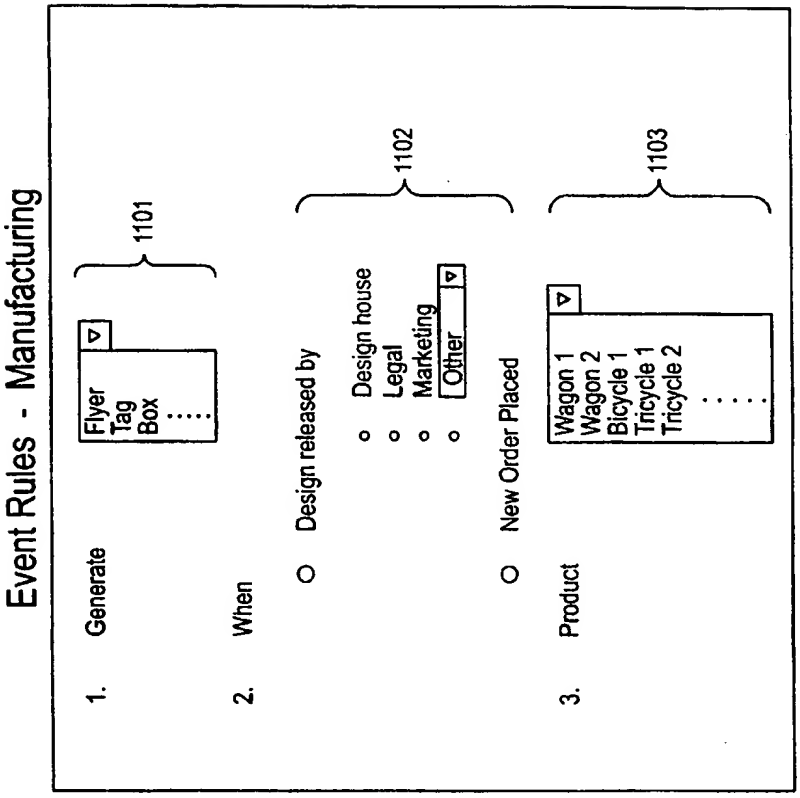

Event Rules - Manufacturing
1. Generate
Flyer
Tag
Box
1101
2. When
Design released by
Design house
Legal
Marketing
Other
1102
New Order Placed
3. Product
Wagon 1
Wagon 2
Bicycle 1
Tricycle 1
Tricycle 2
1103

FIG. 11

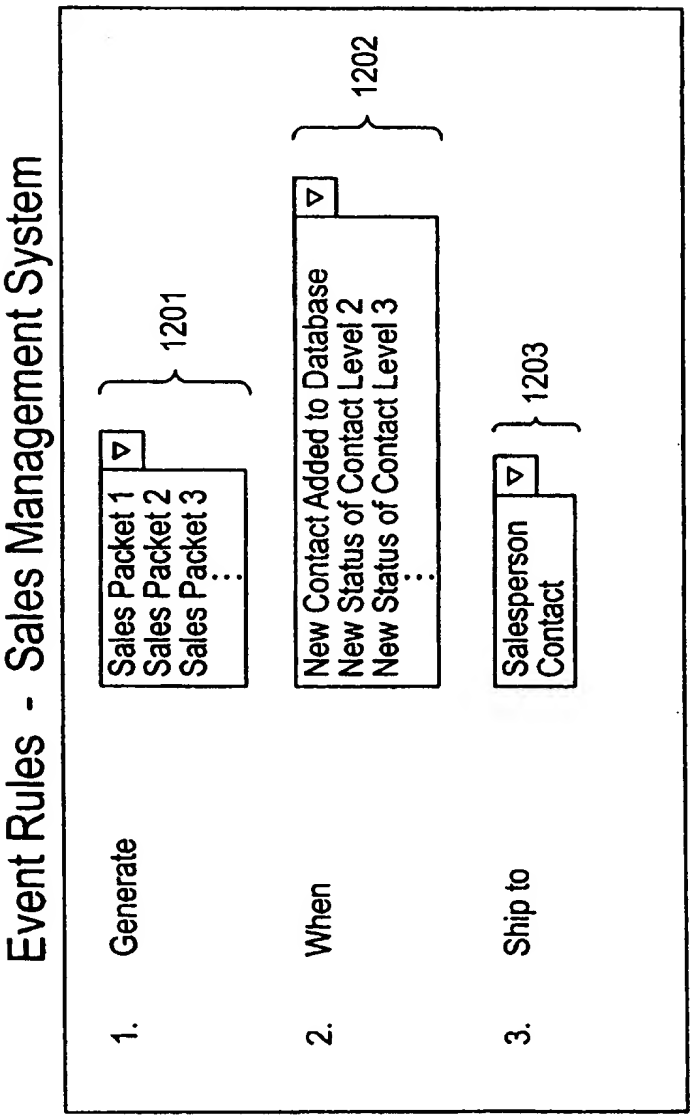

Event Rules - Sales Management System
1. Generate
Sales Packet 1
Sales Packet 2
Sales Packet 3
1201
2. When
New Contact Added to Database
New Status of Contact Level 2
New Status of Contact Level 3
1202
3. Ship to
Salesperson Contact
1203

FIG. 12

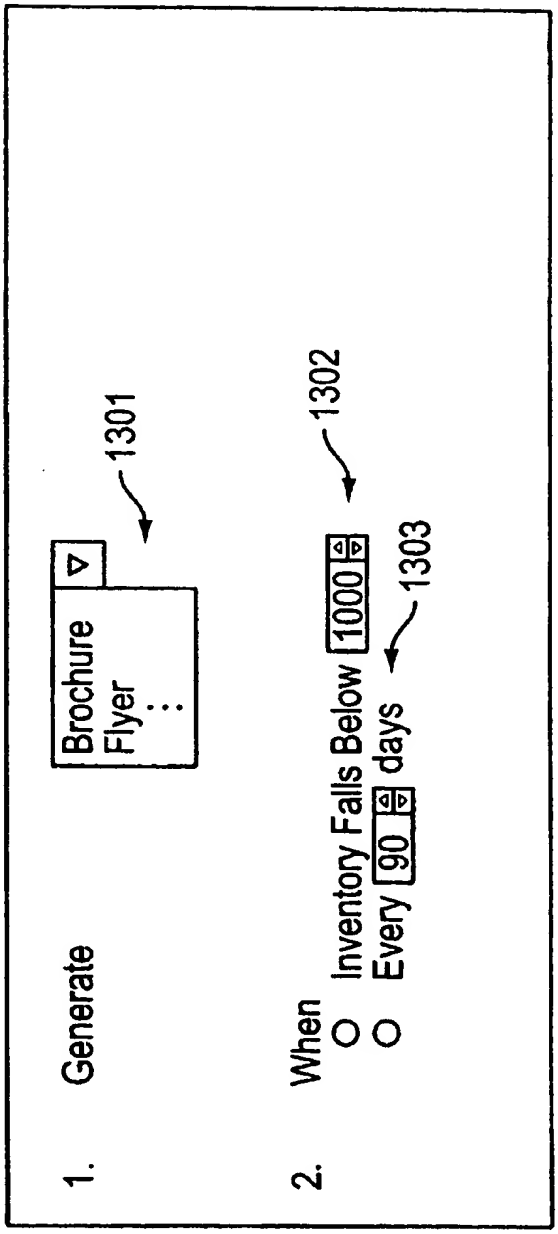

Event Rules - Inventory Control System
1. Generate
Brochure
Flyer
1301
2. When
Inventory Falls Below 1000
Every 90 days
1302
1303

FIG. 13

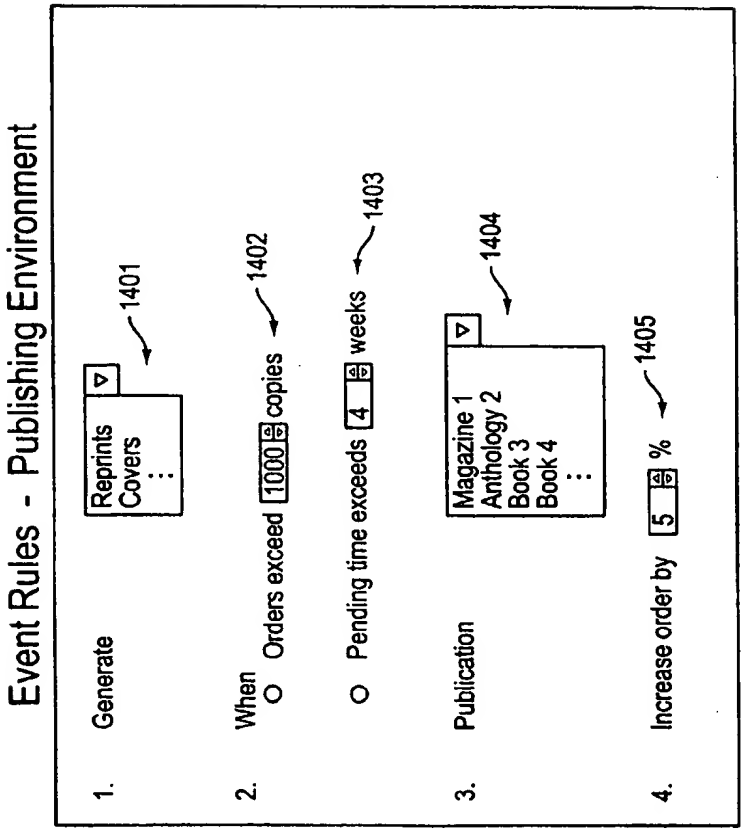

Event Rules - Publishing Environment
1. Generate
Reprints
Covers
1401
2. When
Orders exceed 1000 copies
1402
Pending time exceeds 4 weeks
1403
3. Publication
Magazine 1
Anthology 2
Book 3
Book 4
1404
4. Increase order by 5 %
1405

FIG. 14

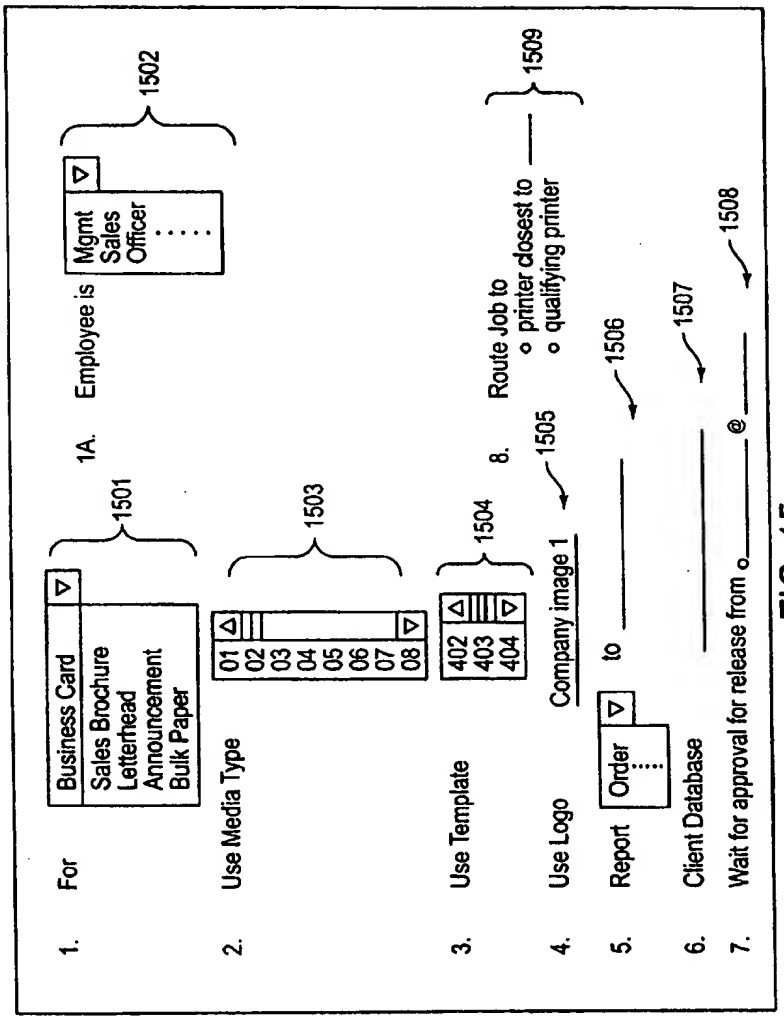

Production Rules
1. For
Business Card
Sales Brochure
Letterhead
Announcement
Bulk Paper
1501
1A. Employee is
Mgmt
Sales
Officer
1502
2. Use Media Type
01
02
03
04
05
06
07
08
1503
3. Use Template
402
403
404
1504
8. Route Job to
o printer closest to
o qualifying printer
1509
4. Use Logo
Company image 1
1505
5. Report
Order
to
1506
6. Client Database
1507
7. Wait for approval for release from o
@
1508

FIG. 15

APPARATUS FOR PRINTING INFORMATION AUTOMATICALLY COMBINED FROM TWO DIFFERENT SOURCES

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation and is related in subject matter to co-pending U.S. application Ser. No. 09/460,307 now pending, entitled "System and File Structure for Consistent Visual Medium Materials," which was filed on Dec. 13, 1999. That application is incorporated by reference herein.

TECHNICAL FIELD

This invention generally relates to systems that generate printed products, such as general office stationery (e.g., letterhead, business cards, or envelopes); and high-end marketing communication materials and other products that use digital printing, commercial offset printing, or flexography. More particularly, the invention provides various systems and techniques for using event-driven rules to initiate print-production tasks on the basis of data extracted from corporate systems or databases such as enterprise resource planning systems, human resource management systems, manufacturing, logistics, or other corporate systems.

BACKGROUND OF THE INVENTION

Conventional techniques for generating customized printed products such as business cards, stationery, and other personalized and marketing communication materials frequently employ computers in the production process. In FIG. 1, for example, a customer **103** desiring to have business cards printed for a new employee typically brings or faxes information **104** to a print broker **101**, such as a local print shop or copy store. An employee **106** creates an order for the print product using an ordering computer **105**. The print order may specify the number of cards to be produced, the font styles to be used, and customized content such as the employee's name, title, and telephone number.

The print order created in ordering computer **105** can be transmitted to a second facility **102** for preprocessing. The order can be transmitted as an ASCII file over a communication link **107** to a second computer **108** at the second facility. A layout computer **108**, operated by another employee **109**, is used to lay-out the content within the space and style constraints of the printed medium (e.g., business cards of a certain size). Conventional software packages such as Pagemaker™ and Quark™ can be used to format the printed product and simulate its appearance before it is actually printed.

The output of the layout computer, which may comprise for example a PostScript™ file, is sent to an image setter **110**, which is a device that generates a plate or other medium that can be directly used by a printing press **111** to produce the printed product **112**. Depending on the type of print medium, the printed product may comprise customized paper products, embossed materials, rubber stamps, plaques, or the like. Although the conventional arrangement shown in FIG. 1 is exemplary, the system may be housed in a single facility, such that all of the printing tasks occur at a common location.

Large corporations by their nature require large quantities of customized printed products, such as business cards, sales brochures, and letterhead. Each time a new employee joins a corporation or a new brochure is needed, the steps shown in FIG. 1 must be carried out. Repeating these steps incurs extensive costs due to human involvement (e.g., labor costs) and the possibility that errors may be introduced into one or more steps. Because of the many steps and human involvement, a simple printing job can take days or even weeks.

As one example, an employee's name must be typed or printed on an order form, then transferred into an ordering computer, and manually entered again into a layout computer. Every time a human touches the information, the process is delayed and the possibility exists that an error will be introduced. Additionally, various validation and approval procedures must be followed in order to ensure that the printed information will be produced correctly, and that only certain authorized products are printed.

Attempts to further automate the foregoing processes are complicated by the fact that different print brokers may use different formats, techniques, and software products for entering data and generating printed products, and the fact that different companies store content such as employee names and addresses in different ways. Other automation barriers are inherent in the distributed and non-uniform process steps that are carried out by different print vendors and suppliers. Some of these problems are discussed in more detail in copending U.S. application Ser. No. 09/460,307 now pending, filed on Dec. 13, 1999, and incorporated by reference herein.

One approach for solving some of the foregoing problems is to use a centralized print production system that accepts print orders over the Internet and allows the customer to approve print proofs on-screen. As described in the above-referenced patent application, the printing process can be simplified by using certain file formats and data processing techniques to generate printed products. Nevertheless, further automation is possible.

Enterprise resource planning systems (ERPs) are conventionally used to store, track and plan information concerning an enterprise, such as a company. For example, many companies use human resource management systems that store information such as employee names, addresses, titles, salaries, and the like. An example of one such system is a commercially available product from PeopleSoft.™ Such systems typically perform payroll and accounting functions, and other human resource related functions such as organizational management. Other enterprise resource planning systems perform tasks such as tracking and planning sales, manufacturing operations, and the like. Companies that do not use ERPs may nevertheless store company-wide information in databases that allow the data to be accessed in a structured way.

The aforementioned ERPs and databases have not typically been coupled to an automated printing facility of the type described above. Even though ERPs and related databases store extensive company-wide information such as employee data, organizational information, inventory and manufacturing data, and the like, such ERPs and databases have not been linked to an automated print production process that could make direct use of the data stored therein. Instead, humans still manually generate print production requests on the basis of changes to the company's data. Because corporate databases and ERPs have historically not been directly accessible to outside vendors, it has not been feasible to directly translate data stored in such databases into print production requests.

When a new employee is added to a company's database, a human resources manager must recognize that event, and

must manually create a print order for new business cards, name plaques, and letterhead. This manual intervention provides opportunities for errors to creep into the print production process, and introduces delays. (For example, if the human resources manager is out sick, busy, or on vacation, the order for business cards may be delayed). Moreover, the labor involved in generating such print orders is costly, particularly where a company adds dozens of new employees on a weekly or monthly basis.

As another example, suppose that a corporation decides to create award plaques, coffee mugs, and specially embossed pins for all sales employees who have exceeded a sales quota. The job of creating print orders to generate such printed products would typically fall to a human resources manager or similar employee, who would query the company's database to identify such sales employees, generate a printout of employee information (e.g., name, title, and the like), and manually create print orders for the various printed products. That task is labor intensive and, as noted above, could result in misspelled names or other data errors.

As yet another example, suppose that a bicycle manufacturing company receives an order to manufacture 5,000 new bicycles of a particular model and style. A manager at the manufacturing company must determine when the bicycle order will be completed and, based on the schedule, create a print order to have printed instruction manuals, warranty cards, and the like generated in time to be included with the manufactured bicycles and shipping boxes.

SUMMARY OF THE INVENTION

The present invention provides a system and method for extracting information from one or more corporate databases and automatically generating print production orders using such information. In one embodiment, a set of event definitions is provided based on changes to data in the corporate database. A set of event rules is also defined, such that a print production request or requisition is automatically generated in response to firing of one or more event rules. The print production request or requisition contains data directly extracted from the corporate database, rather than being manually entered by an employee. A notification can be generated that confirms that the print order was automatically generated and indicates a date by which the print order will be processed and shipped.

According to other aspects of the invention, a computer program monitors changes to one or more corporate databases and generates event data in response to such changes. The event data is transmitted over the Internet to a centralized print production facility, where the event data is used to fire one or more event rules, which in turn automatically generate print requisitions or print production orders. In one variation, print requisitions are routed through an existing and commercially available procurement system, such as Ariba™, before a print production order is generated. One variation of the invention can monitor and handle event data from multiple corporations, each having its own business-related event rules, and each potentially having its own procurement approval system.

Fields in print requisitions and orders can be mapped to corporate database schemas, such that different corporate identifiers for a particular data item (e.g., employee name) are mapped to a common data item in the print production facility. Moreover, some or all of a corporate database can be mirrored at a central facility so that information for print requests can be extracted locally rather than generating further queries in the corporate database.

The inventive principles have broad application to various types of corporate databases and ERPs. In a human resources management system, print orders for new business cards can be automatically generated whenever a new employee is added or when an organizational change occurs. In a manufacturing environment, print orders can be automatically generated when a new design is released for production or when an order is placed that requires corresponding printed products. In a sales management system, customized sales brochures can be automatically printed in response to entry of a new sales prospect. In an inventory control system, print orders can be automatically generated when inventory levels fall below a threshold, or after a specified period of time has elapsed (e.g., print new brochures every 90 days). In a publishing environment, reprint orders for magazine articles and the like can be automatically generated in response to a reprint order request, or when the number of reprints in stock falls below a certain level. Other application areas are also possible.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a conventional technique for generating a printed product such as business cards.

FIG. 2 shows a system that monitors changes to a corporate database and executes rules that automatically generate printed products in response to such changes.

FIG. 3 shows a print production system that uses the Internet to communicate event data and obtain procurement approvals.

FIG. 4 shows a centralized print production system that detects events occurring at a plurality of companies, wherein one company uses a corporate procurement system through which print requisitions must be handled while another company does not use such a procurement system.

FIG. 5 shows a series of steps that can be carried out to implement a method in accordance with various aspects of the invention.

FIG. 6 shows how fields in different corporate databases can be mapped to a common data element in a central print facility, and how certain fields can be mapped to locally stored data that is not stored in the corporate database.

FIG. 7 shows one possible event rule that can be used to specify various parameters such as style, cost, delivery options, shipping destination, and notifications.

FIG. 8 shows a system in which a plurality of corporate databases within a single company are monitored for changes, and a plurality of event rules are defined to handle event data from each database.

FIG. 9 shows a user interface for defining event rules relating to printing documents from information stored in a human resources database.

FIG. 10 shows a process for populating an event message structure.

FIG. 11 shows a user interface for defining event rules relating to printing documents from information stored in a manufacturing database.

FIG. 12 shows a user interface for defining event rules relating to printing documents from information stored in a sales management system database.

FIG. 13 shows a user interface for defining event rules relating to printing documents from information stored in an inventory control system database.

FIG. 14 shows a user interface for defining event rules relating to printing documents from information stored in a publishing system database.

FIG. 15 shows a user interface for defining production rules for printing.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 2 shows a system that employs various principles of the present invention. As shown in FIG. 2, an event rule generator 201 is used to generate one or more event rules that are then stored into an event rules database 202. The term "event rule" will be used to refer to a rule that generates an action in response to a business-related event, such as the addition of a new employee to a corporation; a change in inventory levels for a product; or the receipt of an order to manufacture a product. Other rules based on parameters such as the passage of time could of course be defined. Although it is expected that different companies will have different event rules tailored for their particular business needs, it is of course possible to use the same set of rules for more than one company.

According to the invention, event rules can be defined using any of various techniques such as a graphical user interface or a natural language tool. At least some of the rules may specify that one or more print production requests or requisitions is to be generated upon occurrence of a business event. An example of an event rule might be: IF (new-employee-added) THEN GENERATE (REQUISITION: business-cards USING new-employee-information). The nature and number of the rules will of course be dependent upon the type of business, the type of database, and the type of ERP used by the company. In general, however, it is expected that event rules cause, either alone or in combination with other rules, one or more print production requests to be generated using information pertaining to the event.

The term "print requisition" will be used to refer to a print request for which further approval or information is required before the printing can be completed. The term "print production request" will be used to refer to a print request that can be executed without such intermediate approval or additional information. Print requisitions and print production requests may be referred generally herein as a "print order."

The term "event" will be generally used to refer to a real-life event that can be detected (e.g., adding a new employee, or a change to an inventory level), while the term "event data" will be generally used to refer to information concerning an event that has occurred (e.g., the employee's name and other information). The term "event message" will be generally used to refer to event data that has been augmented with some additional information in order to generate a print requisition or print production request. These terms are not intended, however, to be limiting. Moreover, the invention can be practiced without using event messages altogether.

Some event rules may not directly result in the generation of a print requisition or a print production request, but may instead set variables or store data into a database that causes other rules to fire. For example, a first rule could be defined that increments a new employee counter whenever a new employee is added, and a second rule could be defined that generates a new order for business cards whenever the number of new employees reaches five.

Moreover, some events may cause other events to fire. For example, if an organizational unit of a company changes its name, then all employees belonging to that organizational unit may require new business cards. A rule can be constructed that automatically queries all employees in the new organizational unit and generates print requisitions for new business cards (using the new organizational name) for all such employees.

The general creation and use of rules to perform further processing is conventional and can be implemented using well-known expert system techniques (e.g., PROLOG), for example. Customized rules could also be programmed directly in software using programming languages such as C, C++, Visual Basic, LISP, or the like. See U.S. Pat. No. 5,893,911, entitled "Method for Defining and Applying Rules for Message Distribution for Transaction Processing in a Distributed Application," assigned to Neon Software Inc. Examples of various user interfaces that could be used for establishing business related event rules are provided herein.

Returning to FIG. 2, it is assumed that a corporate database or ERP 203 contains information relating to a particular application area, such as human resources, inventory control, sales management, or the like. The database can comprise a relational or object-oriented database, and data residing in the database can be queried and modified using well-known data access conventions such as Structured Query Language (SQL). Any of various commercially available databases such as Oracle, Sybase, or Informix could be used. It is of course possible that multiple databases co-exist on a single computer, or one or more databases can be distributed across different computers in a corporation.

A computer-implemented monitoring function 204 monitors corporate database 203 for changes. Monitoring function 204 can be configured to watch for changes to particular fields or tables in a corporate database (e.g., any change to employee records), or it can be configured to generate event data whenever any change occurs. When a new record is added to the database, monitor 204 extracts some or all of the new information ("event data") and transmits it to event manager function 205. For example, if a new employee is added to the database, monitor 204 extracts the new employee's name, address, and other information, and transmits the event data event manager 205. Monitoring function 204 can be configured to periodically query the database for new records, or it can be configured to intercept database updates and generate event data in response thereto. Moreover, the monitoring function can be implemented on a separate computer coupled to a computer on which the corporate database resides, or it can by hosted on the same computer as the database.

In some cases, subsidiary information may be required in order to create a print requisition or print production request, and other databases can be queried to create information sufficient to create a print requisition or print production request. For example, when a new employee is added to the database, the billing and shipping information for business cards to be printed for the new employee can be extracted from a different database. As another example, a particular company's graphics logo that is used on business cards may not reside in the corporate database 203, but may instead be stored in a different location. The subsidiary look-up functions could be performed by monitor 204, by event manager 205 or by another software function. Such further information may exist on a corporate database or it may exist locally on a central print production server.

Event manager 205 receives event data from monitor 204 and, by executing rules stored in event rules database 202, generates a print requisition to a procurement system 206. In one embodiment, procurement system 206 comprises a

commercially available procurement product such as Ariba™, Concur™, or Commerce One™. Such systems provide facilities for creating and updating purchase orders and obtaining approvals to release the orders to vendors. In other embodiments, a print production request is directly generated and provided to print production system **207** without going through a procurement system **206**.

One possible print production system **207** is described in co-pending application Ser. No. 09/460,307, entitled "System and File Structure for Consistent Visual Medium Materials," which is incorporated by reference herein. Print production system **207** may comprise a centrally located facility through which print orders can be received over the Internet from a plurality of companies. Imaging system **208** and print processor **209** are conventional. Imaging system **208** may comprise any of various types of devices that generate print media such as printing plates or sheets on the basis of an electronic file, and print processor **209** performs the actual printing, embossing, engraving or the like in order to generate printed products **210**.

In one embodiment, print production system **207** can transmit print orders to multiple vendors, such as Vendor A and Vendor B shown in FIG. **2**. In this manner, different rules can specify that certain types of print production tasks are to be routed to one geographic print location, while other types of print production tasks are to be routed to another geographic print location. For example, if business cards are to be printed for a new employee at the California location of a company, the actual print job can be routed to a print vendor located in California, in order to minimize shipping costs and expedite delivery. A print job for an employee located in New Jersey might be routed to a New York City vendor for the same purpose. In one embodiment, a software function in print production facility **207** locates the print vendor nearest to the shipping location. The print production system can be coupled to different vendors over the Internet, by facsimile, or by other methods.

Rules can be created to select vendors based upon other criteria, such as ownership of the vendor or the business practices of the vendor. For example, some municipalities require that, in order to enter into a contract with the municipality, an organization subcontract a percentage of services to minority-owned businesses. Alternately, some organizations desire to only employ services from environmentally friendly companies. Accordingly, rules can be used to select vendors based upon ownership of the vendor or the vendor's business practices.

More generally, rules can be used to specify various cost, schedule, delivery, location, print quality, shipping, and other parameters associated with print jobs. Turning briefly to FIG. **7**, a rule can be defined that is fired whenever a new employee is added to Company X's corporate database. The rule can specify that upon such an event, a print production request for new business cards be generated using a particular pre-defined business card style for Company X. The rule can also specify that the business card be generated using information regarding the new employee extracted from the event data (i.e., extracted from the corporate database), wherein additional information such as billing information can be extracted from other data sources. Moreover, the creator of the rule can specify that the cost must be less than $20 for a set of business cards, thus causing print production system **207** to locate a print vendor that can satisfy this requirement. Alternatively, rules can be used to optimize multiple print production requests into a print job that can be routed to a vendor able to satisfy the requirement.

The rule can also specify a delivery constraint (e.g., must be delivered within 3 days), which can be used by the software to locate a print vendor that is within a 3-day shipping area of the shipping address (or is willing to ship on an expedited basis within that constraint). A shipping address can also be specified, and if necessary can be queried from the corporate database or other location. Finally, a notification option can be specified in order to notify the employee and the human resources administrator when the order is shipped. Other variations are of course possible, and the example of FIG. **7** is not intended to be limiting.

Turning now to FIG. **3**, a system that incorporates various principles of the invention in an Internet environment (or similar network) will be described. It is assumed that a corporate database **301**, a database monitoring function **302**, and a corporate procurement system **306** is located at a company facility **350**. Additionally, it is assumed that monitoring function **302** and corporate procurement system **306** are accessible through the Internet **307** using conventional protocols such as HTTP, FTP, and the like. Event manager **304**, event detection function **303**, event rules database **305**, and mirrored database **312**, along with the other functions on the right side of FIG. **3**, are assumed to reside at a centrally located print production facility **360** that is similarly accessible over the Internet **307**. It will be appreciated that certain of the functions can be centrally located, while others (e.g., imaging system **309** and/or print processor **310**) could be located at a separate facility.

Database monitoring function **302** comprises software that is tailored to the company's corporate database **301** to monitor changes to certain fields in corporate database **301** and, in response thereto, generate event data that is transmitted over the Internet or other network to event detection function **303** at the central print production facility **360**. Database monitoring function **302** may be implemented on a separate computer from corporate database **301**, or it may co-exist on the same computer. According to one embodiment, database monitoring function **302** and event detection function **303** use the commercially available WebMethods Server software in order to extract and transmit information over the Internet. It will be appreciated that instead of the Internet, other types of networks such as local area networks and the like can be used.

Event detection function **303** receives event data from monitoring function **302**, converts each into an event message that forms the predicate for one or more rules in event rules database **305**, and passes the event message to event manager **304**. Where necessary, database fields in corporate database **301** are mapped to fields used internally by print production facility **360** to create printed products, and this mapping can be done in monitoring function **302**, event detection function **303**, or event manager **304**. As explained above, conversion of event data into an event message structure may require supplementation of data such as billing information and the like, although such a step may not be required. Database monitor **302** and event detector **303** can be located on either client side **350** or print facility side **360**, depending on design requirements.

Turning briefly to FIG. **6**, a first company (Company X) might use a certain database schema that contains fields identified as EMPLOYEE-NAME, EMPLOYEE-TITLE, and the like. A second company (Company Y) may refer to similar data items in its database as ENAME, ETITLE, and so forth. Fields in different corporate schemas **601** and **603** can be mapped to a common schema **602** within print production facility **360**, such that an instance of a field for

EMPLOYEE-NAME from Company X is stored into a generic NAME field in the print production facility, and an instance of a field for ENAME from Company Y is stored into the same named field in the print production facility. Similarly, data that does not reside in either company's database can be stored locally within print production facility **360** in a separate database **604** having fields mapped to the common schema **602**. For example, a "logo" field that refers to a graphical logo that is to be printed on a company's business cards may be stored separately in a logo database **604** at the print production facility. References to each company's logo as part of a print order will cause the logo to be retrieved locally from database **604**.

Returning to FIG. **3**, in one embodiment event manager **304** executes event rules and, in response thereto, generates a print production request to print production system **308**. In another embodiment, event manager **304** executes a rule that causes a print requisition in the form of a procurement order to be generated and sent to corporate procurement system **306** for approval. Such a request can be sent over the Internet, and approval returned in the same manner. After receiving approval, a print production request is generated and passed to print production system **308** for execution. Event manager **304** can also automatically notify a corporate employee (e.g., via e-mail) to confirm that the order was placed. The latter notification can include an estimated completion and shipment date for the order.

Event manager **304** can be implemented as a queue-driven process that retrieves a next event from the queue; retrieves any business rules that apply to that event, and performs the actions that apply to that event. Different sets of event rules for different companies can be stored in event rules database **305** and retrieved according to the company from which an event was generated. Moreover, event manager **304** may generate additional events based on the firing of certain rules. For example, if an organizational change occurs, a rule can be fired that automatically queries all employees affected by the organizational change and generates a print requisition for each new employee to create new business cards for those employees. In certain embodiments, it may also be possible to pass event data directly to event manager **304** without processing by event detection function **303**.

In one embodiment, a mirrored database **312** is maintained at the central print production facility **360**, such that database changes in corporate database **301** are transmitted to mirrored database **312**. When additional information is needed for a print request, it can be extracted directly from mirrored database **312** instead of querying corporate database **301**. In yet another variation, monitoring function **313** can be located at the print production facility and used to monitor changes to mirrored database **312** instead of hosting such monitoring functions at the corporate facility. In this case, some mechanism for maintaining synchronization between the databases would be needed (e.g., periodic batch updates or the like), as is known in the art.

Certain types of print requisitions may require additional information, such as a billing or shipping address for the print production request. This additional information can be extracted from corporate database **301**, from mirrored database **312**, from a local database maintained at the print production facility **360**, or provided by corporate procurement system **306**.

In one embodiment, print requests are generated when an external procurement request is generated. According to this embodiment, a company employee uses a commercially available procurement system to request a print job (e.g., new business cards). The procurement system recognizes the request as one to be directed to a print vendor, and transmits the request to event manager **304** over the Internet. Event manager **304** fills in customer-specific details not included in the request, verifies the completeness and correctness of the resulting structure, and places the request in a queue for processing.

According to one variation of the invention, event queues may be used to temporarily hold event messages until another specified event occurs (for example, the passage of a period of time). Queues can be used on the client or corporate side **350** of the system of FIG. **3** (e.g., in connection with database monitor **302**), or they may be placed on the print production facility side **360** of FIG. **3**. For example, event messages can be queued until the end of a business day, or until a specified number of events (e.g., ten or more events) have occurred. Additionally, events can be conditioned on the occurrence of other events.

It will be appreciated that the various functions illustrated in FIG. **3** can be located on the client side (**350**) instead of at a central print production facility (**360**), and that various functions may be combined for purposes of design and efficiency. Consequently, the architecture shown in FIG. **3** is intended to be exemplary only. For example, at a portion of the event detection function may be combined with the database monitor **302** on the client side **350**. This allocation of function would help reduce the number of actions to be handled by event detection function **303** and event manager **304**. In this instance, the database monitor **302** could store event rules and include a queue that stores database actions until an event is to be generated.

FIG. **4** shows an alternate embodiment in which a plurality of companies **401** and **402** are coupled to a print production facility **406** through the Internet, and wherein a first company **401** uses a corporate procurement system **403** for approval of print requisitions, while a second company **402** does not use such a procurement system. This embodiment illustrates how a central print production facility **406** can handle different types of requirements from different companies.

FIG. **5** shows steps that can be carried out to implement various methods of the invention. Beginning in step **501**, one or more printed products are defined, and the data content required for each product is mapped to one or more fields at the print production facility. For example, a business card product may comprise various common fields such as name, title, address, telephone number, corporate logo, and the like. Additionally, certain formatting information such as the size, shape, color, and other parameters of the business card are specified. This information collectively defines one type of printed product (e.g., business card type A). Step **501** may be performed with respect to a user interface as shown, for example, in FIG. **15**.

In step **502**, events that can occur in the system are defined and mapped to one or more corporate database fields. For example, an event message NEW-EMPLOYEE-ADDED can be defined to occur when a new employee record is added to the corporate database, and various fields from that record are mapped to corresponding fields in the print production facility (see FIG. **6**). Some rules can be created such that they are triggered automatically upon passage of a certain quantity of time (e.g., check an inventory level every 5 days, or print a new catalog once a year based on the current state of a parts database).

In step **503**, company-specific event rules and corresponding actions are defined. As one example, when a new

employee record is added to the corporate database, a print requisition for 1,000 business cards, a new name plaque, and customized letterhead for that employee will be automatically generated, using data extracted from the corporate database (i.e., without human input). If the employee is a sales employee, then sales brochures or other pertinent printed products can be generated.

As a further example, a company may have a specific business rule that states that if a sales person exceeds his or her sales quota for a given quarter, that salesperson may order a special set of business cards and stationery items. In this example, events can be defined (step **502**) such that once an individual sales quota is exceeded, two actions will be performed by step **504**. One action may be to grant ordering privileges to the special product set, and the second action may be to send a notification to the salesperson informing them of their ability to order these products. This example does not exclude the possibility that a print production request could be generated directly (step **507**).

As another example, if a new product order is added to the database, a print requisition for a number of printed products (instruction books, warranty cards, and the like) corresponding to the number of products ordered will be automatically generated. Again, it is preferred that no human manually enter information such as numbers or product codes in order to generate the print request, in order to minimize human intervention and avoid data entry errors.

Step **503** may also include interacting with a user interface. The user interface may take the form of displays on a screen similar to those shown in FIGS. **9**, **11**, **12**, **13**, and **14**. After interacting with the user interface, the event rules may be saved into event rules database **202**.

Rules can be defined to perform any of various actions when triggered by an event.
Some examples include:

(1) Send an e-mail regarding notification or scheduling of a future event;

(2) Create, cancel, or approve a purchase order; or update a database record in a central print production facility (including checkpointing or taking a snapshot of a corporate database);

(3) Perform an external procurement operation (e.g., through a commercial system)

(4) Perform an action on an external customer corporate data (e.g., update an employee record, update an inventory record, or insert a purchase order number);

(5) Perform an action on a print vendor's system (e.g., add job, cancel job, etc.);

(6) Perform an action on an external manufacturing tracking system, such as HAGAN™ (e.g., create a job in process, update job in process, etc.).

An automatic procurement action can be initiated based on detection of an event. For example, if a new employee is added to the corporate database, a procurement order can be automatically generated to request that a certain predetermined set of personalized office supplies such as letterhead, envelopes, business cards, and the like be ordered and shipped to the new employee's address.

In step **504**, events in the system are detected and rules fired based on changes to the corporate database. Alternatively, event messages may be generated in response to a manually entered procurement order.

In step **505**, a print requisition is optionally generated using data extracted from the corporate database and, if necessary, from other sources (e.g., logo image files; billing and shipping addresses). As explained above, requisitions could be avoided and print production requests directly generated in certain embodiments of the invention. If a print requisition is generated, then in step **506** approval of the requisition occurs, either through a commercially available procurement system or some other mechanism.

In step **507**, a print production request is generated, again preferably using information extracted from the corporate database rather than manually entered information. Additionally, a notification feature can be provided, such that an e-mail message is transmitted to a predetermined employee (or to the employee whose print products were automatically ordered) confirming that the print order was submitted, and providing an estimated completion and/or shipping date.

In one embodiment, a notification or shipment request can also be generated for a vendor to schedule further action on a particular date. For example, if it is determined that the print job will be completed in two days and result in a certain quantity of paper products, an advance notification can be transmitted to a shipping vendor to schedule pick-up of a predetermined number of boxes on the date that the print job will be completed.

Finally, in step **508** the printed products are generated. These may comprise paper products, plaques, embossed items, packages, container labels, and the like.

FIG. **8** shows a system in which a plurality of different types of corporate databases, such as human resources database **803**, sales database **804**, and manufacturing database **805**, are monitored in order to generate event data to an event detection function **809**. Event detection function **809** generates event messages that are handled by event manager **810**, which applies separate rules tailored for each type of database. For example, one set of human resource rules **806** may apply only to events occurring in the human resources database **803**, while sales rules **807** pertain only to events arising from sales database **804** and manufacturing rules apply only to events occurring in manufacturing database **805**. Although separate monitoring functions are shown in FIG. **8** to allow for the possibility that the databases may reside on different machines at different locations, the monitoring functions and databases could of course be combined into a single machine at one or more locations.

A more detailed description of one possible approach for allowing a user to define various types of event rules in the system will now be provided with reference to FIGS. **9** through **16**. Various user interface techniques, such as form-driven web pages, can be used to accept user input to define event rules. As discussed above, rules can also be specified in a declarative language such as PROLOG or the like and executed by an inference engine. Combinations of the two are also possible, such that a browser-based form input tool is used to generate declarative rules, which are then interpreted by an expert system or inference engine.

Referring to FIG. **9**, a user interface is shown for receiving input relating to designation of event rules. The user interface includes a first selection **901** in which a user designates the type of printed product to be generated. A second selection **902** allows the user to designate when an action or event will trigger the rule, and includes a pull-down menu **903** that specifies various types of events that can occur in the database to which the rule pertains. According to one embodiment, the events correspond to changes to predefined columns in a database table (e.g., new employee, changed telephone number, and the like).

Option **904** allows the user to specify when the print production job should be released, and may include a variety

of options **905**, **906**, and **907**. For example, as indicated at **905**, the print job can be released automatically, so that the printing is initiated immediately after detection of the event. Alternatively, the print job release may be conditioned on various factors such as whether an optimum number of print jobs has been received in a queue (optimum in the sense that multiple print jobs can be combined for efficiency); whether a certain number of print requests has been received; or whether a certain number of days has elapsed.

An optimum number of print jobs may relate to specific conditions of the printing production system **308** of FIG. **3**. For example, as is known in the art, business cards are generally printed in batches consisting of groups of four, six, eight, etc. cards each. A printer attempts to minimize set up and break down costs for a printing press by placing as many different cards on each printing plate or die as possible. By increasing the number of cards on the plate or die, the longer the run length of the printing press. Because setting up and breaking down a press run involves certain fixed costs, overall costs can be minimized by spreading the fixed costs over as many printing jobs as possible. The ability for the client to specify that the rule is only to be fired when there are an optimum number of print jobs thus may reduce costs to the client.

Finally, user interface portion **906** allows for a default release after a selected number of days. If a queue resident on event manager **304** contains actions that are older than a specified number of days, the queue will be flushed and the event manager **304** will initiate the print production requests for items in the queue.

User interface selection **907** allows a user to designate that the job will need to be approved prior to releasing the job. In this situation, the user would enter the information regarding who will provide approval. In some cases, multiple approvals may be required. Where at least one person or process has been designated to approve a job, the occurrence of an action satisfying the criterion of **903** instructs event manger **304** to generate a request for approval from corporate procurement system **306**. In an alternative embodiment, corporate database **301** can be updated with an indication that approval has been sought, thus causing database monitor **302** to monitor corporate database **301** for an indication that the print job has been approved. At that point, database monitor **302** would transmit an approval action to event detection **303**, which would then generate an approval event for handling by event manager **304**.

Selection option **908** allows the user to specify shipping information (e.g., ship when order complete, hold until a designated time, and ship to a designed entity). Option **909** includes a button for saving the entered information. It is appreciated that additional screens may be used to input information and the actual saving of information can only occur after all information has been entered.

FIG. **10** shows an example of a process for populating an event structure. In FIG. **10**, an employee record is updated (step **1001**). The change in the database storing the employee record is detected (step **1002**). An event structure (reporting the change) is populated (step **1003**) with information regarding the change as detected in step **1002**. In the situation where certain additional information (not supplied with the detected change) is needed, such additional information is retrieved in step **1005** and populated into the event structure (step **1004**). Alternatively, the additional population steps could be performed on the print production system side **360**.

In step **1006**, the event structure is checked for completeness and correctness. If additional information is needed to fulfill the print request (for example, the specific corporate logo or template to use), this information is retrieved from database **312** (step **1006**) and the completed order placed in an event production queue for processing (step **1007**).

FIG. **11** shows a user interface for defining event rules relating to printing documents from information stored in a manufacturing database in accordance with embodiments of the present invention. Like the interface of FIG. **10**, a first selection item **1101** allows a user to specify what printed product is to be generated when the rule fires. Interface portion **1102** allows a user to determine when the selected item in **1101** is to be printed. In some embodiments, at least two different situations are possible: the time that a design is released by one or more entities; and the time that a new product order has been placed. Selection option **1103** allows the user to select the product for which the item to be printed.

FIG. **12** shows a user interface for defining event rules relating to printing documents from information stored in a sales management system database. Selection option **1201** relates to the type of sales product to be generated (for example, sales packet no. **1**, sales packet no. **2**, etc.). Selection item **1202** allows the user to identify the event that will trigger the rule (for example, new contact added to database, new status of contact moving to level **2**, new status of contact moving to level **3**, and the like). Selection option **1203** allows the user to specify where the printed product should be shipped. For example, the printed information may be shipped to the salesperson or the contact.

FIG. **13** shows a user interface for defining event rules relating to printing documents from information stored in a inventory control system database. User interface portion **1301** includes the type of item to be printed (for example, a flyer, a brochure, etc.). As database monitor **302** fires actions to event manager **304** through event detection **303**, interface portions **1302** and **1303** indicate when an event has occurred for print processing. Interface portion **1402** allows a user to specify that an event has occurred when inventory falls below an adjustable number. In this example, database monitor **302** monitors the inventory in corporate database **301** and forwards inventory changes to event manager **304** through event detection function **303**. Selection option **1303** allows the user to specify that the printed product should be generated according to a specified time interval.

FIG. **14** shows a user interface for defining event rules relating to printing documents from information stored in a publishing system database. User interface portion **1401** allows the user to select the type of item to be printed (reprints, covers for magazines, etc.). Interface portion **1402** allows the user to specify that a print order should be generated when the number of orders for a given item exceed a specified number. This could be beneficial when the set up costs for producing a small number of reprints is relatively high per reprint. By setting a minimum number of orders to be placed before executing the reprint order, the set up costs may be spread over a larger number of orders. Interface portion **1403** allows for the flushing of an order queue after a given number of weeks. For example, if a publishing house needs to complete all orders by a given time, all orders may be processed at a chosen time as specified in interface portion **1403**. Interface portion **1404** allows selection of the title to be printed. The selection of the title may also include selection of a portion of the title as well. For example, one may specify to reprint an entire magazine. Alternatively, one may separately specify to reprint selected articles for the magazine. Finally, interface portion **1405** allows for the user to select a specified overrun

to allow for any subsequent orders. A percentage overrun may be beneficial where the publisher knows that subsequent orders may likely be received, but wants to create a stockpile of reprints at a given time (for example, prior to receiving all orders). This allows the publisher to not have to reset presses for running a short reprint run.

FIG. **15** shows a user interface for defining production rules for printing. User interface portion **1501** allows the user to select a specified product. These production rules may also include designation of the customer (for example, company X as opposed to company Y). Sub designations may also be made for various individuals in the company through interface portion **1502**. Interface portion allows for selection of the media type for the printing of the item selected in interface portion **1501**. For example, for business cards selected in interface portion **1501**, the customer may wish to have one card stock for management and a different card stock for sales personnel. Interface portion **1504** allows for different templates to be specified. Interface portion **1505** allows a user to specify which logo to use for a given printed item (for example, if a blue logo is to be used for sales v. a gold-embossed logo for management). Interface portion **1506** allows for reporting (and approval, if specified, in interface portion **1508**) to be made to various entities of a client. Interface portion **1507** allows for selection of a client's database that holds additional information. For example, a client may wish to maintain all content image files for printing. If the image file was not forwarded with the event as reported to event manager **304** and if the client maintains the actual image file, user interface portion **1507** allows the specification of the database. Also, for secure environments, the interface portion may include authentication and verification information **1507** needed to access the client's database. Interface portion **1508** receives user input to hold a print order until approval has been received from another entity. Finally, interface portion **1509** allows a user to select a printer based on some criteria. For example, a printer may be selected by location (close to a specified zip code) or chosen by ownership (e.g. jobs may be earmarked for printing by minority-owned businesses).

The principles of the invention can be applied to not only traditional paper printed products, but to electronic documents as well. For example, the invention can be applied to publish electronic documents and "deliver" them to Internet web pages, discussion groups, e-mail systems, collaboration portals, and to enterprise systems. All of the foregoing would be examples of database-driven means for communicating and publishing digital information.

Thus has been described various systems, methods and techniques for generating print production requests according to events that occur in a corporate database. Any of the method steps described herein can be implemented in computer software that is stored on a computer-readable medium such as a magnetic disk or CD-ROM. Many variations and alterations of the invention are of course possible. Consequently, the invention should be limited only by the appended claims and their equivalents.

What is claimed is:

1. A computer-readable medium having computer executable instructions for performing steps comprising:

receiving a first portion of a print requisition or print production request from a print production system, the first portion relating to a client of the print production system;

receiving a second portion of the print requisition or print production request from the client of the print production system; and

automatically combining, without human intervention, the first portion and the second portion into a format for the print requisition or print production request that is printable by a printing vendor.

2. The computer-readable medium of claim **1**, wherein the instructions include instructions for

receiving the first portion from a storage device maintained by the print production system; and

receiving the second portion via a network communication.

3. The computer-readable medium of claim **2**, wherein the network communication is an Internet communication.

4. The computer-readable medium of claim **1**, further including instructions for notifying the client after the first portion and the second portion have been automatically combined.

5. The computer-readable medium of claim **1**, further including instructions for sending the printable format for the print requisition or print production request to the printing vendor.

6. The computer-readable medium of claim **5**, further including instructions for receiving approval of the printable format from the client, and sending the printable format to the printing vendor in response to the approval from the client.

7. The computer-readable medium of claim **6**, wherein the instructions include instructions for selecting the printing vendor based upon criteria designated by the client.

8. The computer-readable medium of claim **5**, wherein the instructions include instructions for selecting the printing vendor based upon criteria designated by the client.

9. The computer-readable medium of claim **1**, wherein the instructions include instructions for automatically combining the first portion and the second portion based upon at least one event rule.

10. The computer-readable medium of claim **9**, wherein at least one event rule is previously designated by the client.

11. The computer-readable medium of claim **1**, wherein the second portion is specific to the client.

12. The computer-readable medium of claim **1**, wherein the instructions include instructions for receiving the second portion from an enterprise resource planning system maintained by the client.

13. The computer-readable medium of claim **12**, wherein the instructions include instructions for receiving the second portion in response to a change of data in the enterprise resource planning system.

14. The computer-readable medium of claim **12**, further including instructions for

receiving a third portion of the print requisition or print production request from a second enterprise resource planning system maintained by the client, and

automatically combining, without human intervention, the first portion, the second portion and the third portion into a format for the print requisition or print production request that is printable by a printing vendor.

* * * * *

EXHIBIT C

Stationery Ordering System

Create Service Center Profile

The information in your profile will be printed on your stationery items. Please ensure all your information is correct and up to date before ordering. The information printed on each specific type of stationery item has been predetermined by KCI.

Fields with an * are required.

Stationery Information

Exact name to appear on stationery*:
Example: Phoenix Service Center

Address 1*:
Example: 101 Avenue H

Address 2:
Example: Building 2, Suite 500

City*:

State*: SELECT STATE

Zip*:

Direct Phone*:
Enter all phone numbers: (xxx) xxx-xxxx

Service Center Phone:

Customer Service Phone:

Voicemail Phone:

Fax:

Pager:

Mobile:

E-mail:

Shipping Information Leave shipping information blank if same as above

Address 1:

Address 2:

City:

State: SELECT STATE

Zip:

General Information

Oracle Billing Code*: - - - -

Supervisor*:

Username*:

Example: 12345
The username should be the service center number.

Stationery Logo:

◉ KCI The Clinical Advantage™

○ KCI

○ KCI International Inc.™

○ KCI Manufacturing with ISO 9000 (Logo Not Available)

Review Profil

EXHIBIT D

(210) 255-6974

Stationery Ordering System

(210) 732-3232

Welcome to KCI's Online Stationery Ordering System

KCI and Lopez Printing have established a partnership to make ordering your office stationery fast and easy!

The following stationery items can be ordered with just clicks of your mouse:

- business cards
- letterhead
- envelopes
- notepads
- name badges
- name plates

Have you used this system before? YES NO

EXHIBIT E

TO ALL RAC'S

Leonard Lopez - 1 sheet

SAMPLE of new CARD FORMAT.

888 # MAY change

masons
smithm@
kci.com

Craig Arnold
KCI USA
Region Vice President

100 Hollister Road
Teterboro, NJ 07608

Phone (201) 727-1200
Fax (201) 727-0211
1-888-ASK-4KCI (275-4524)
Voice mail ext. 0000
Cell/Pager 000-000-0000
E-mail: Craig.Arnold@KCIUSA.net

www.KCI1.com

all lower case

arnoldc@
kci1.com

Hazel @ kci.com

EXHIBIT F

www.kci1.com

Craig Arnold
KCI USA
Region Vice President

100 Hollister Road
Telerborro, NJ 07608

Phone: (210) 727-1200
Fax: (210) 727-0211
888-ASK-4KCI (275-4524)
800-000-0000
Voice Mail: Ext. 0000
Cell/Pager: 000-000-000
E-mail: craigarnold@kciusa.net

EXHIBIT G

LOPEZ PRINTING, INC.
(210) 732-3232

Stationery Ordering System

LOPEZ PRINTING, INC.
(210) 732-3232

Lopez Printing Billing Statement: KCI Generated on 9/3/1999		
Leslie Littrell, RN	8/25/99	Per Box: $15.00
Oracle: 02-00-05165-6455-0000	Business Cards	Sub-Total: $30
Order #921	Field	Shipping: $5
User: LITTRELL4972	2 Boxes	**Total: $35**
		Total Number of Orders Filled: 1
		Total Statement Invoice: $35

Return to Billing Statements
Return to Processor Main

EXHIBIT H

LOPEZ PRINTING, INC.

LOMBRANO SAN ANTONIO, TX 78207
210.732.3232 FACSIMILE 210.732.3309

9/7/99	DATE
10151	INVOICE NUMBER
10/7/99	DUE DATE

INVOICE

CUSTOMER NAME & ADDRESS

KCI GRAPHICS-CREATIVE
P.O. BOX 659508
SAN ANTONIO, TX 78265
BEXAR

CUSTOMER TERMS	P.O. NUMBER	SALES REPRESENTATIVE
Net 30 Days	SEE ATTACHED.	R S

DESCRIPTION	AMOUNT
J-12187 1000 BUSINESS CARDS (FIELD) LESLIE LITTRELL, RN	35.00

Subtotal	35.00
Sales Tax	2.71
Total Invoice Amount	$37.71
Payment Received	0.00
TOTAL DUE	$37.71

Check No:

EXHIBIT I

LOPEZ PRINTING, INC.
(210) 732-3232

Stationery Ordering System

LOPEZ PRINTING, INC.
(210) 732-3232

Lopez Printing Billing Statement: KCI Generated on 10/8/1999		
Sylvia A. Cruz Oracle: 0002-99-00039-6030-0000 Order #936 User: CRUZ6317	8/26/99 Desk Nameplates New 1 Boxes	Per Box: $5 Sub-Total: $5 Shipping: $5 **Total: $10**
Margaret A. Wingfield, CPA Oracle: 0001-92-00019-6455-0000 Order #956 User: WINGFIELD6780	9/3/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $0 **Total: $15**
Allison E. Adema, RN, BSN, PHN Oracle: 0002-00-05271-6455-0000 Order #959 User: ADEMA2610	9/7/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Thomas E. Philbeck, Jr. Oracle: 2-94-00007-6030-0 Order #960 User: HERNANDEZ6645	9/8/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $0 **Total: $15**
Tim K. Jarvis Oracle: 0002-04-90110-6455-0000 Order #964 User: JARVIS2191	9/8/99 Notepads Executive 1 Boxes	Per Box: $55 Sub-Total: $55 Shipping: $5 **Total: $60**
Martha A. Cram Oracle: 0002-04-90110-6455-0000 Order #967 User: CRAM2882	9/8/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Martha A. Cram Oracle: 0002-04-90110-6455-0000 Order #968 User: CRAM2882	9/8/99 Notepads Executive 1 Boxes	Per Box: $55 Sub-Total: $55 Shipping: $5 **Total: $60**
Martha A. Cram Oracle: 0002-04-90110-6455-0000 Order #969 User: CRAM2882	9/8/99 Name Badge Standard 1 Boxes	Per Box: $6.00 Sub-Total: $6 Shipping: $5 **Total: $11**
Martha A. Cram Oracle: 0002-04-90110-6455-0000 Order #970 User: CRAM2882	9/8/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
David A. Walker Oracle: 0002-04-90110-6455-0000 Order #974 User: WALKER2402	9/8/99 Notepads Executive 1 Boxes	Per Box: $55 Sub-Total: $55 Shipping: $5 **Total: $60**
David A. Walker Oracle: 0002-04-90110-6455-0000 Order #975 User: WALKER2402	9/8/99 Name Badge Standard 1 Boxes	Per Box: $6.00 Sub-Total: $6 Shipping: $5 **Total: $11**

249.00
45.00 ship

David A. Walker Oracle: 0002-04-90110-6455-0000 Order #976 User: WALKER2402	9/8/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Rosa Rivas Oracle: 0011-00-00089-6455-5834 Order #977 User: RIVAS5511	9/8/99 Envelopes Windowed #10 3 Boxes	Per Box: $49.25 Sub-Total: $147.75 Shipping: $0 **Total: $147.75**
Alicia Drago, RN, CWCN Oracle: 0002-00-90111-6455-0000 Order #978 User: DRAGO2647	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Alicia Drago, RN, CWCN Oracle: 0002-00-90111-6455-0000 Order #979 User: DRAGO2647	9/9/99 Name Badge Standard 1 Boxes	Per Box: $6.00 Sub-Total: $6 Shipping: $5 **Total: $11**
Alicia Drago, RN, CWCN Oracle: 0002-00-90111-6455-0000 Order #980 User: DRAGO2647	9/9/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Noel Taylor Oracle: 0002-00-90108-6455-0000 Order #981 User: TAYLOR3130	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Craig S. Arnold Oracle: 0002-00-90108-6455-0000 Order #982 User: ARNOLD2933	9/9/99 Letterhead Executive - 1 address and name 1 Boxes	Per Box: $52.00 Sub-Total: $52 Shipping: $5 **Total: $57**
Craig S. Arnold Oracle: 0002-00-90108-6455-0000 Order #983 User: ARNOLD2933	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Craig S. Arnold Oracle: 0002-00-90108-6455-0000 Order #984 User: ARNOLD2933	9/9/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Michael Malloy, RRT Oracle: 0002-00-32212-6455-0000 Order #985 User: MALLOY3221	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Ted O'Neil Oracle: 0002-00-38256-6455-0000 Order #986 User: ONEIL2615	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Richard Callanan Oracle: 0002-00-21255-6455-0000 Order #987 User: CALLANAN2061	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Joseph Martin Oracle: 0002-00-32212-6455-0000 Order #988 User: MARTIN2927	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Tom Fearns Oracle: 0002-00-20317-6455-0000 Order #990 User: FEARNS2196	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**

346.75
65.00 ship

Allen Royce Pollard Oracle: 0002-00-46159-6455-0000 Order #991 User: POLLARD0000	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
James N. Cavanagh Oracle: 0002-00-30210-6455-0000 Order #992 User: CAVANAGH2984	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
James N. Cavanagh Oracle: 0002-00-30210-6455-0000 Order #993 User: CAVANAGH2984	9/9/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Mike Feliciano Oracle: 0002-00-20317-6455-0000 Order #994 User: FELICIANO3144	9/9/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Marion Meskill, RN Oracle: 0002-00-90111-6455-0000 Order #1035 User: MESKILL2945	9/13/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Marion Meskill, RN Oracle: 0002-00-90111-6455-0000 Order #1036 User: MESKILL2945	9/13/99 Name Badge Standard 1 Boxes	Per Box: $6.00 Sub-Total: $6 Shipping: $5 **Total: $11**
Marion Meskill, RN Oracle: 0002-00-90111-6455-0000 Order #1037 User: MESKILL2945	9/13/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Judy LyBrand RN, BSN Oracle: 0002-00-90111-6455-0000 Order #1038 User: LYBRAND2123	9/13/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Judy LyBrand RN, BSN Oracle: 0002-00-90111-6455-0000 Order #1039 User: LYBRAND2123	9/13/99 Name Badge Standard 1 Boxes	Per Box: $6.00 Sub-Total: $6 Shipping: $5 **Total: $11**
John Robson Oracle: 0002-00-90111-6455-0000 Order #1041 User: ROBSON2108	9/13/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
George Doscher Oracle: 02-00-38256-6455-0000 Order #1042 User: DOSCHER2798	9/13/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
John J. Svehla Oracle: 0002-00-90111-6455-0000 Order #1043 User: SVEHLA2913	9/13/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Ann Coleman Oracle: 0002-00-90108-6455-0000 Order #1044 User: COLEMAN3152	9/13/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Richard W. Payne Oracle: 0002-00-90108-6455-0000 Order #1045 User: PAYNE2735	9/13/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**

168.00
70.00 Ship

James A. Adams Oracle: 0002-94-00004-6855-5668 Order #1046 User: ADAMS6515	9/13/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $0 **Total: $15**
Bob Mulholland Oracle: 0002-00-90108-6455-0000 Order #1048 User: MULHOLLAND2302	9/13/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Linda C. Miller Oracle: 1-90-36-6030-0 Order #1049 User: MILLER6972	9/13/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Mark Mautino Oracle: 0002-00-05271-6455-0000 Order #1050 User: MAUTINO2115	9/13/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Peter Loope Oracle: 2-00-90106-6455-0 Order #1053 User: LOOPE2864	9/14/99 Letterhead Regular - Field 1 Boxes	Per Box: $41.00 Sub-Total: $41 Shipping: $5 **Total: $46**
Peter Loope Oracle: 2-00-90106-6455-0 Order #1054 User: LOOPE2864	9/14/99 Envelopes Regular #10 1 Boxes	Per Box: $46.25 Sub-Total: $46.25 Shipping: $5 **Total: $51.25**
Peter Loope Oracle: 2-00-90106-6455-0 Order #1055 User: LOOPE2864	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Peter Loope Oracle: 2-00-90106-6455-0 Order #1057 User: LOOPE2864	9/14/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Michael Donohoe, RN Oracle: 0002-00-48141-6455-0000 Order #1058 User: DONOHOE2098	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Karen Ray, RN, BSN Oracle: 0002-00-48141-6455-0000 Order #1059 User: RAY0000	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Barbara Taylor, RN Oracle: 0002-00-46127-6455-0000 Order #1060 User: TAYLOR2392	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Kathleen J. Phelan, RN Oracle: 0002-00-32202-6455-0000 Order #1061 User: PHELAN2472	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Dennis Peloso Oracle: 02-00-30210-6455-0 Order #1062 User: PELOSO2976	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Marlene Clay, RN Oracle: 0002-00-46215-6455-0000 Order #1063 User: CLAY2902	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**

259.25
15.00 Ship

Michael Donohoe, RN Oracle: 0002-00-48141-6455-0000 Order #1064 User: DONOHOE2098	9/14/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Cameron Sawtelle Oracle: 0002-00-46128-6455-0000 Order #1065 User: SAWTELLE0000	9/14/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Stephen Wright Oracle: 0002-00-32212-6455-0000 Order #1066 User: WRIGHT3120	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Richard J. Shaneberger Oracle: 0002-00-32212-6455-0000 Order #1067 User: SHANEBERGER2793	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: ~~$15~~ Shipping: ~~$5~~ **Total: $20**
Richard J. Shaneberger Oracle: 0002-00-32212-6455-0000 Order #1068 User: SHANEBERGER2793	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Erik Romar Oracle: 0002-00-19307-6455-0000 Order #1069 User: ROMAR2466	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Sandy L. Zimmer, RN, BSN Oracle: 0002-00-38256-6455-0000 Order #1070 User: ZIMMER2535	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Lawrence M. Perkins Oracle: 0002-00-29160-6455-0000 Order #1071 User: PERKINS2644	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
William J. Tepe, CEBS Oracle: 0002-00-07208-6455-0000 Order #1072 User: TEPE2316	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Mark C. Robinson Oracle: 0002-00-07208-6455-0000 Order #1074 User: ROBINSON2959	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Sandy L. Zimmer, RN, BSN Oracle: 0002-00-38256-6455-0000 Order #1075 User: ZIMMER2535	9/14/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Michael Kelly Oracle: 02-00-30316-6455-0 Order #1076 User: KELLY2198	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Michael Kelly Oracle: 02-00-30316-6455-0 Order #1077 User: KELLY2198	9/14/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Rebecca Ajay, RN Oracle: 0002-00-38256-6455-0000 Order #1078 User: AJAY3102	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**

163.00
65.00 ship

R. J. Kofmehl Oracle: 02-00-38256-6455-0 Order #1079 User: KOFMEHL2698	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
R. J. Kofmehl Oracle: 02-00-38256-6455-0 Order #1080 User: KOFMEHL2698	9/14/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Karen Meyer Oracle: 02-00-30210-6455-0 Order #1081 User: MEYER2276	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Linda Tucciarone, RN Oracle: 0002-00-30210-6455-0000 Order #1082 User: TUCCIARONE2580	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Tonya Creque Oracle: 0002-00-46308-6455-0000 Order #1083 User: CREQUE2921	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Sherri Hirsch Oracle: 02-00-20317-6455-0 Order #1084 User: HIRSCH2761	9/14/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Sherri Hirsch Oracle: 02-00-20317-6455-0 Order #1085 User: HIRSCH2761	9/14/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Michael Richter, RRT Oracle: 0002-00-30316-6455-0000 Order #1086 User: RICHTER2970	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Michael Richter, RRT Oracle: 0002-00-30316-6455-0000 Order #1087 User: RICHTER2970	9/15/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Mary Donovan, RN Oracle: 0002-00-32212-6455-0000 Order #1088 User: DONOVAN2985	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Mary Donovan, RN Oracle: 0002-00-32212-6455-0000 Order #1089 User: DONOVAN2985	9/15/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Tax Department Oracle: 1-92-00092-6030-0 Order #1090 User: FITZPATRICK6659	9/15/99 Envelopes Windowed #10 2 boxes Boxes	Per Box: $49.25 Sub-Total: $-1.#IND Shipping: $0 **Total: $-1.#IND**
Martin A. Donovan III Oracle: 2-00-18245-6455-0 Order #1091 User: DONOVAN2230	9/15/99 Letterhead Executive - 1 address and name 1 Boxes	Per Box: $52.00 Sub-Total: $52 Shipping: $5 **Total: $57**
Martin A. Donovan III Oracle: 2-00-18245-6455-0 Order #1092 User: DONOVAN2230	9/15/99 Envelopes Executive 1 Boxes	Per Box: $67.00 Sub-Total: $67 Shipping: $5 **Total: $72**

301.25
65.00 Ship

Martin A. Donovan III Oracle: 2-00-18245-6455-0 Order #1094 User: DONOVAN2230	9/15/99 Desk Nameplates New 1 Boxes	Per Box: $5 Sub-Total: $5 Shipping: $5 **Total: $10**
Martin A. Donovan III Oracle: 2-00-18245-6455-0 Order #1095 User: DONOVAN2230	9/15/99 Name Badge Standard 1 Boxes	Per Box: $6.00 Sub-Total: $6 Shipping: $5 **Total: $11**
Joseph J. Lagowski Oracle: 2.00.43140.6455.0 Order #1096 User: LAGOWSKI2421	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Tim Hulen Oracle: 02.00.25138.6455.0 Order #1097 User: HULENH900	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Tim Hulen Oracle: 02.00.25138.6455.0 Order #1098 User: HULENH900	9/15/99 Notepads Regular 1 Boxes	Per Box: $47.50 Sub-Total: $47.5 Shipping: $5 **Total: $52.5**
Wanda Butaud RN, BSN, ET Oracle: 2.00.46140.6455.0 Order #1099 User: BUTAUD2139	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Sheila Cullen, RN, BSN, CETN Oracle: 02-00-25276-6455-0 Order #1100 User: CULLEN2969	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Sheila Cullen, RN, BSN, CETN Oracle: 02-00-25276-6455-0 Order #1101 User: CULLEN2969	9/15/99 Notepads Regular 1 Boxes	Per Box: $47.50 Sub-Total: $47.5 Shipping: $5 **Total: $52.5**
Pamela Engstrom, RN Oracle: 02-00-30316-6455-0 Order #1102 User: ENGSTROM2581	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Gregory Golden Oracle: 02-00-21258-6455-0 Order #1103 User: GOLDEN2528	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Mark Frastak Oracle: 02-00-20317-6455-0 Order #1104 User: FRASTAK0000	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Denise Huber, RN Oracle: 02-00-38126-6455-00 Order #1105 User: HUBER2109	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Denise Huber, RN Oracle: 02-00-38126-6455-00 Order #1106 User: HUBER2109	9/15/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Margaret-Ann C. Halstead Oracle: 02-00-20317-6455-0 Order #1107 User: HALSTEAD2990	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**

248.00
70.00 Ship

John Glagolev Oracle: 02-00-32195-6455-0 Order #1108 User: GLAGOLEV2345	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Malcolm Ricks RRT Oracle: 2.00.43169.6455.0 Order #1109 User: RICKS2863	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Tim Hulen Oracle: 2.00.25138.6455.0 Order #1110 User: HULEN2184	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Sherman West, RRT, RCP Oracle: 2.00.25125.6455.0 Order #1111 User: WEST2095	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Annette Dalton Oracle: 2.00.43231.6455.0 Order #1112 User: DALTON2035	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Kathie Meyer, RN Oracle: 2.00.27137.6455.0 Order #1113 User: MEYER2755	9/15/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Robin Hoff Oracle: 0002-93-00049-6030-0000 Order #1134 User: HOFF6774	9/20/99 Business Cards Corporate 1 box Boxes	Per Box: $15.00 Sub-Total: $-1.#IND Shipping: $0 **Total: $-1.#IND**
Larry P. Baker Oracle: 0001-99-00013-6455-0000 Order #1135 User: BAKER6456	9/20/99 Letterhead Executive Corporate - 3 addresses and name 2 Boxes	Per Box: $52.00 Sub-Total: $104 Shipping: $0 **Total: $104**
Larry P. Baker Oracle: 0001-99-00013-6455-0000 Order #1136 User: BAKER6456	9/20/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $0 **Total: $15**
Joe Bell Oracle: 02-0-90106-6455-0 Order #1137 User: BELL2325	9/21/99 Letterhead Executive Corporate - 3 addresses and name 2 Boxes	Per Box: $52.00 Sub-Total: ~~$104~~ Shipping: ~~$5~~ **Total: $109**
Joe Bell Oracle: 02-0-90106-6455-0 Order #1138 User: BELL2325	9/21/99 Envelopes Executive 2 Boxes	Per Box: $67.00 Sub-Total: ~~$134~~ Shipping: ~~$5~~ **Total: $139**
Joe Bell Oracle: 02-0-90106-6455-0 Order #1139 User: BELL2325	9/21/99 Notepads Executive 1 Boxes	Per Box: $55 Sub-Total: $55 Shipping: $5 **Total: $60**
Joe Bell Oracle: 02-0-90106-6455-0 Order #1140 User: BELL2325	9/21/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Darlene Meixner Oracle: 0002.94.00007.6455.0000 Order #1141 User: MEIXNER6640	9/21/99 Envelopes Executive 1 Boxes	Per Box: $67.00 Sub-Total: $67 Shipping: $0 **Total: $67**

353.00
40.00

Brian Maley Oracle: 0002-00-03265-6455-0000 Order #1142 User: MALEY2389	9/22/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Alfonso Reina Oracle: 1.92.11.6230.0000 Order #1144 User: SAVAGE6593	9/22/99 Desk Nameplates New 1 Boxes	Per Box: $5 Sub-Total: $5 Shipping: $0 **Total: $5**
Beth Clifford-Milliken Oracle: 0002-00-19307-6455-0000 Order #1145 User: MILLIKEN2226	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Susan Warren-Mileikis Oracle: 0002-00-19307-6455-0 Order #1146 User: WARREN2134	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Greg Pomykata Oracle: 0002-00-90111-6455-0000 Order #1147 User: POMYKATA2303	9/23/99 Letterhead Executive - 1 address and name 2 Boxes	Per Box: $52.00 Sub-Total: $104 Shipping: $5 **Total: $109**
Greg Pomykata Oracle: 0002-00-90111-6455-0000 Order #1148 User: POMYKATA2303	9/23/99 Envelopes Executive 2 Boxes	Per Box: $67.00 Sub-Total: $134 Shipping: $5 **Total: $139**
Greg Pomykata Oracle: 0002-00-90111-6455-0000 Order #1149 User: POMYKATA2303	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Alfonso Reina Oracle: 1.92.11.6230.0000 Order #1150 User: SAVAGE6593	9/23/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $0 **Total: $15**
Brian Wyatt Oracle: 0002-00-46307-6455-0000 Order #1152 User: WYATT2461	9/23/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Shawn Scott Oracle: 0002-00-30316-6455-0000 Order #1154 User: SCOTT0000	9/23/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Sandra Carlson Oracle: 0002-00-30316-6455-0002 Order #1156 User: CARLSON0000	9/23/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Reid Mulholland Oracle: 0002-00-30316-6455-0000 Order #1157 User: MULHOLLAND0000	9/23/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Mike Jordan Oracle: 0002-00-48141-6455-0000 Order #1158 User: JORDAN0000	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Jeanmarie Gargan, RN Oracle: 0002-00-32212-6455-0000 Order #1159 User: GARGAN2792	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**

376.00
60.00 Ship

Jeanmarie Gargan, RN Oracle: 0002-00-32212-6455-0000 Order #1160 User: GARGAN2792	9/23/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Tina M. Anders, RN, BSN Oracle: 0002-00-20317-6455-0000 Order #1161 User: ANDERS2853	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Tina M. Anders, RN, BSN Oracle: 0002-00-20317-6455-0000 Order #1162 User: ANDERS2853	9/23/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Francie Lucas, RN, BSN Oracle: 0002-00-38256-6455-0000 Order #1163 User: LUCAS2166	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Ernie D. Mazza Oracle: 0002-00-20317-6455-00 Order #1164 User: MAZZA2384	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Ray Forbes Oracle: 0002-00-30316-6455-0000 Order #1165 User: FORBES2636	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Ray Forbes Oracle: 0002-00-30316-6455-0000 Order #1166 User: FORBES2636	9/23/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Alicia Smith, RN Oracle: 0002-00-29160-6455-0000 Order #1167 User: SMITH2918	9/23/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Janie Trevino Oracle: 0001-92-000018-6030-0000 Order #1168 User: TREVINO4732	9/23/99 Desk Nameplates New 1 Boxes	Per Box: $5 Sub-Total: $5 Shipping: $0 **Total: $5**
Maria Onofre Oracle: 0001-92-00018-6030-0000 Order #1169 User: ONOFRE4735	9/23/99 Desk Nameplates New 1 Boxes	Per Box: $5 Sub-Total: $5 Shipping: $0 **Total: $5**
Emilio Cruz Oracle: 0001-92-00018-6030-0000 Order #1170 User: CRUZ4753	9/23/99 Desk Nameplates New 1 Boxes	Per Box: $5 Sub-Total: $5 Shipping: $0 **Total: $5**
Yolanda Cortez Oracle: 0001-92-00018-6030-0000 Order #1171 User: CORTEZ4753	9/23/99 Desk Nameplates New 1 Boxes	Per Box: $5 Sub-Total: $5 Shipping: $0 **Total: $5**
Karen D. Harrison, RN Oracle: 02-00-37251-6455-0 Order #1172 User: HARRISON2775	9/24/99 Letterhead Executive - 1 address and name 1 Boxes	Per Box: $52.00 Sub-Total: $52 Shipping: $5 **Total: $57**
Karen D. Harrison, RN Oracle: 02-00-37251-6455-0 Order #1173 User: HARRISON2775	9/24/99 Envelopes Executive 1 Boxes	Per Box: $67.00 Sub-Total: $67 Shipping: $5 **Total: $72**

235.00
50.00 Ship

Karen D. Harrison, RN Oracle: 02-00-37251-6455-0 Order #1174 User: HARRISON2775	9/24/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Karen D. Harrison, RN Oracle: 02-00-37251-6455-0 Order #1175 User: HARRISON2775	9/24/99 Notepads Executive 1 Boxes	Per Box: $55 Sub-Total: $55 Shipping: $5 **Total: $60**
Karen D. Harrison, RN Oracle: 02-00-37251-6455-0 Order #1178 User: HARRISON2775	9/24/99 Name Badge Standard 1 Boxes	Per Box: $6.00 Sub-Total: $6 Shipping: $5 **Total: $11**
Karen D. Harrison, RN Oracle: 02-00-37251-6455-0 Order #1179 User: HARRISON2775	9/24/99 Name Badge clip on Standard 1 Boxes	Per Box: $7.00 Sub-Total: $7 Shipping: $5 **Total: $12**
Jim Harrison, RN, CWCN Oracle: 0002-00-05179-6455-0000 Order #1181 User: HARRISON3142	9/27/99 Business Cards Field 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $5 **Total: $20**
Terri Sigler Oracle: 0002-07-00049-7899-2213 Order #1182 User: SIGLER6646	9/27/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $0 **Total: $15**
Eric S. Shapiro Oracle: 0001-92-00021-6455-0000 Order #1183 User: SHAPIRO6758	9/27/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $0 **Total: $15**
Yvonne S. Rizzo Oracle: 0001-92-00019-6455-0000 Order #1184 User: RIZZO6743	9/27/99 Letterhead Regular - Corporate 1 Boxes	Per Box: $41.00 Sub-Total: $41 Shipping: $0 **Total: $41**
Yvonne S. Rizzo Oracle: 0001-92-00019-6455-0000 Order #1185 User: RIZZO6743	9/27/99 Envelopes Regular #10 1 Boxes	Per Box: $46.25 Sub-Total: ~~$46.25~~ Shipping: $0 **Total: $46.25**
Yvonne S. Rizzo Oracle: 0001-92-00019-6455-0000 Order #1186 User: RIZZO6743	9/27/99 Business Cards Corporate 1 Boxes	Per Box: $15.00 Sub-Total: $15 Shipping: $0 **Total: $15**
Joe Bell Oracle: 02-0-90106-6455-0 Order #1187 User: BELL2325	9/28/99 Letterhead Executive - 1 address and name 1 Boxes	Per Box: $52.00 Sub-Total: $52 Shipping: $5 **Total: $57**
Joe Bell Oracle: 02-0-90106-6455-0 Order #1192 User: BELL2325	9/28/99 Envelopes Executive 1 Boxes	Per Box: $67.00 Sub-Total: $67 Shipping: $5 **Total: $72**
Christopher M. Fashek Oracle: 0002-94-00052-6455-0000 Order #1194 User: ROYDER6424	9/28/99 Letterhead Executive Corporate - 3 addresses and name 1 Boxes	Per Box: $52.00 Sub-Total: $52 Shipping: $0 **Total: $52**
		Total Number of Orders Filled: 150 Total Statement Invoice: $-1.#IND

355.00
35.00 Ship
3054.25 Total
630.00 Ship
$ 2684.25

Return to Billing Statements
Return to Processor Main

EXHIBIT J

LOPEZ PRINTING, INC.
427 LOMBRANO SAN ANTONIO, TX 78207
210.732.3232 FACSIMILE 210.732.3309

OK MB Please charge to GL CODES AS INDICATED.

10/11/99	DATE
10316	INVOICE NUMBER
11/10/99	DUE DATE

CUSTOMER NAME & ADDRESS
KCI GRAPHICS-CREATIVE P.O. BOX 659508 SAN ANTONIO, TX 78265 BEXAR

INVOICE

CUSTOMER TERMS	P.O. NUMBER	SALES REPRESENTATIVE
Net 30 Days	SEE ATTACHED	R.S

DESCRIPTION	AMOUNT
LOPEZ #'S J-12323, J-12326, J-12349, J-12350, J-12351, J-12353, J-12355, J-12356, J-12357, J-12374, J-12375, J-12397, J-12398, J-12410, J-12446, J-12428 & 12429	~~3,054.25~~ 3088.50
VARIOUS STATIONERY ITEMS - SEE ATTACHED FOR LISTING OF NAMES AND PRICING	
SHIIPING CHARGES - NON TAXABLE	~~630.00~~ 620.00

Subtotal	3708.50 ~~3,684.25~~
Sales Tax	239.36 ~~236.70~~
Total Invoice Amount	3947.86 ~~$3,920.95~~
Payment Received	0.00
TOTAL DUE	~~$3,920.95~~ # 3,947.86

Check No: